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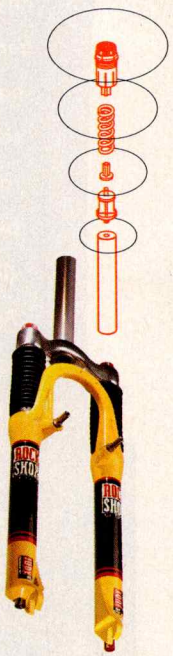

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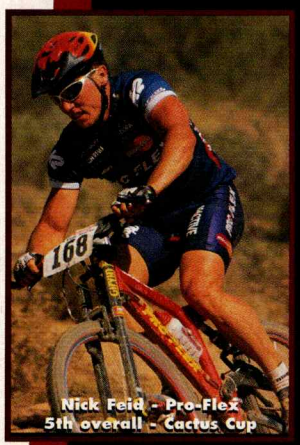

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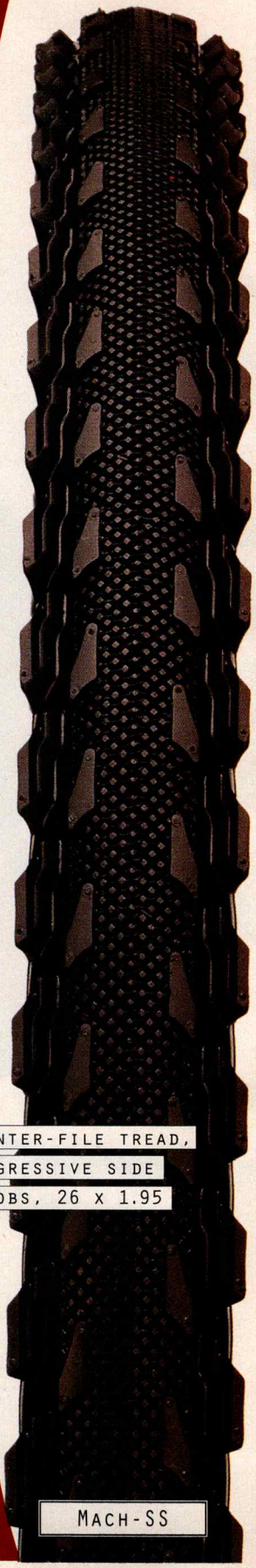

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Cover: Greg "Hair Ball" Herbold throws an airball at Tom Webb's Nikon. This page: Sunns rising in Napa. Photo by Chris Jonnum.

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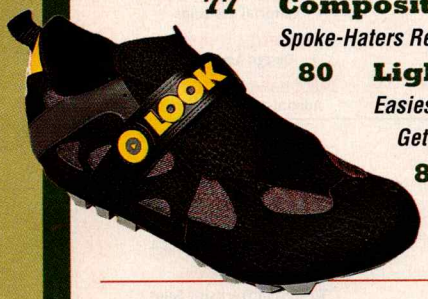

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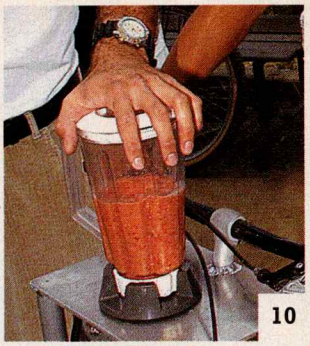

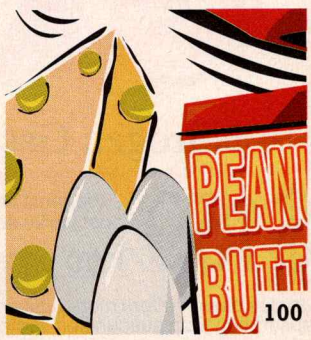

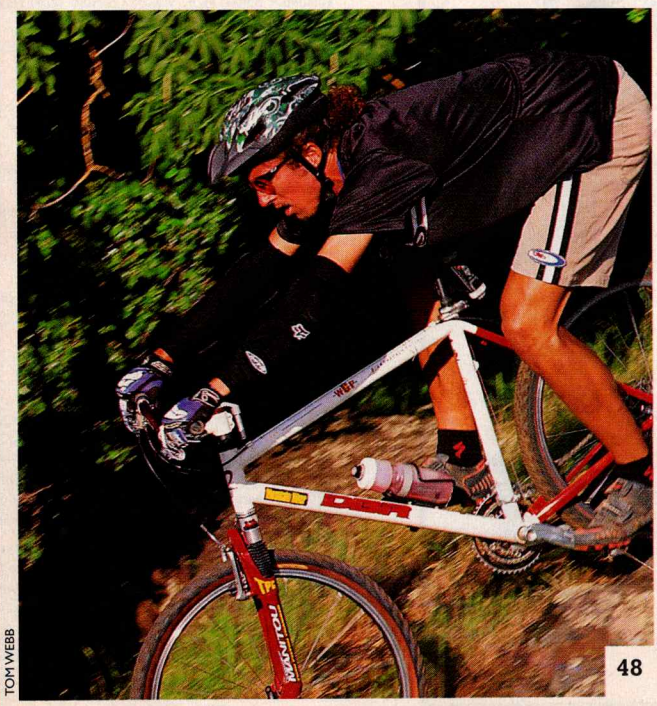

TOM WEBB

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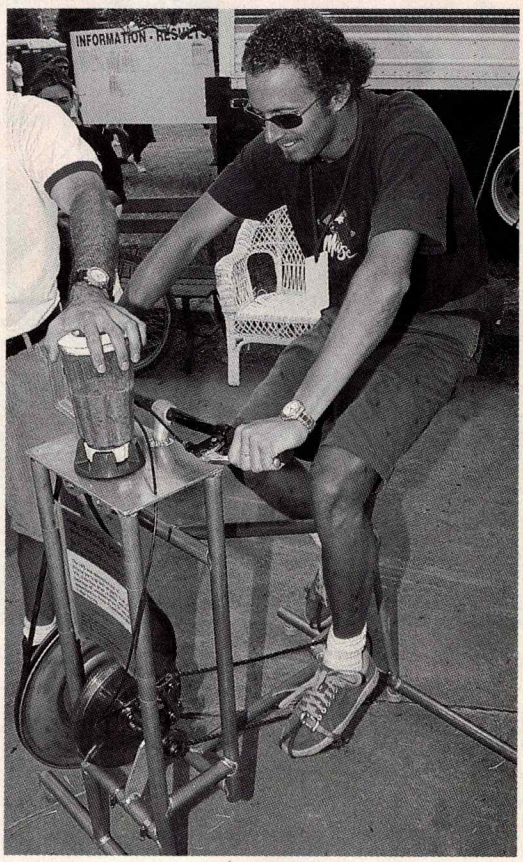
Word

Each of us here at *Mountain Biker* shares a penchant for slang, and ironic as it may sound, I suppose that fact can be partially blamed on our line of work. After all, when the better part of your day is spent in an unbroken (though sometimes unsuccessful) sentinel on the proper use and representation of the English tongue, you can't resist a little mishandling of the language after the shift-whistle blows.

Due to the odd assortment of haphazard experiences my life has thus far contained, my own lexicon is arguably the most random. In a typical conversation, I'm likely to incorporate surf lingo, rural colloquialisms, bits of Italian and Spanish, barely logical nicknames and outdated rap idiom. "Wadup, Fo-Fo? That trail was nectar," I'll enthuse to my friend Forrest following a particularly enjoyable ride. "You got phat air off that jump, but I spoded out and looked like a Bob. My getaway sticks are toast. What's the 4-1-1 on chow? I'm cabbage-less—whole lotta *nada*, *piñata*—but if you float me we can grind. Nasal? At's awight. I haven't cut the rug in a coon's age, so I'm gonna chill at a dope shindig tonight. Ciaoing you."

I'm aware of the adolescent nature of such speech, but figure its occasional employment is forgivable—provided, of course, I refrain from uttering it within our office walls. Besides, its immaturity is easily balanced out by the orations of the Poindexter staff at *Mountain Biker*'s sister publication, *Bicyclist*. All are nice guys with closet fat-tire leanings, but like most roadies, their speech would have a nuclear physicist grabbing for his dictionary. Take "Paco" Joe Lindsey, for example. Whereas hard rides rob most folks of the breath necessary for sustained speech, intense exercise seems only to limber up Paco's vocal cords. Rather than simply panting, "This shock feels stiff," Paco (who is so diminutive that *every* shock feels stiff to him) will pedal along spewing, "I believe my shock absorber's progressively wound coil does not possess a sufficiently yielding rate. In addition, I suspect that during impacts of the torsional, high-speed-compression variety, the damping cartridge's shim stack may be experiencing a small amount of blow-by with the 7.5-weight hydraulic fluid. This is no doubt due to my rearward weight bias, caused by the peculiar front-center of this monocoque frame, though the Teflon-impregnated pivot also lacks the diameter necessary to handle such forces. Perhaps the problem will be alleviated if I decrease my tires' pneumatic pressure to 2 bar, though I fear the increased contact patch may cause an excess coefficient of friction during ascents..." While unfailingly accurate, these tirades are usually lacking in any type of conclusion, and tend to simply fade out as Paco pedals out of earshot. For him, you see, they're an attempt more at exhaling than communication.



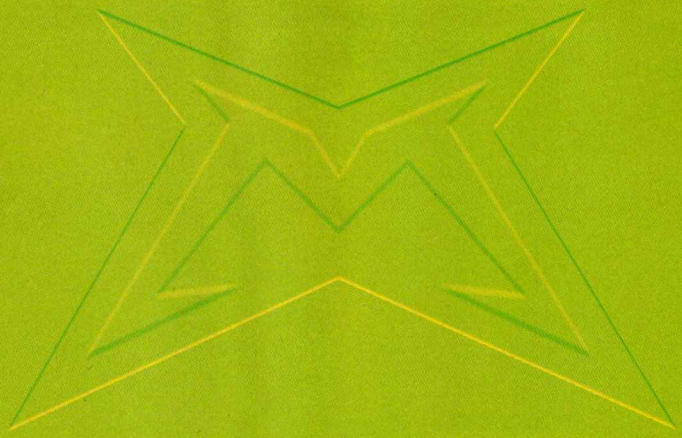
TOM WEBB

You'd expect such linguistic behavior from apathetic peons like Paco and me, but oddly enough, bossman Tom Webb is the guiltiest party of all when it comes to inappropriate narration. Not exactly your typical, tie-wearing, briefcase-toting executive, Wolfman's lingo is made up of a collection of graphic images and extreme exaggerations, and for some reason, conversations usually take a turn toward natural (and unnatural) bodily functions when Wolf joins in. "I'm ready for a 50/50 mix of vodka and vodka," he'll blurt as he coasts to a midride stop. "I was roosting through that mung when I torpedoed a mongo boulder, did a huge seat sucker and detonated my woobie [seat binder]. Mr. Saddle collapsed, so my toochas was by the bottom bracket and my knees were hitting my visor. I was dragooned in that canyon and about to throw a hissy, but clawed my way out and played Cochise to find you quags. I was so worked that I was hacking lung butter and thought I'd yawn a rainbow. Can you futz with this thing so we can moto?" Throw in Tom's animated facial expressions and wild gestures, and anyone around him is usually in hysterics.

T-Dub's time has of late been increasingly occupied with boring boss stuff like high-level meetings, and he's thus forced to do much of his riding solo—before and after office hours. With no one to entertain while pedaling, Boss Wolf has begun painting his colorful word portraits in the office—with we underlings serving as his amused audience. Though we enjoy the entertainment, I can't help wondering if our vocabulary vigilance will be corrupted by this new development, and if a bit of the dreaded slang may find its way into our previously pristine stories.

Naw, the chances are posolutely zilch. We're hip on the vibe that one poochy cone like that and we'd be toasted spooge.

—Chris Jonnum
jonnumc@petersenpub.com



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Lawrence Peter "Yogi" Berra

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- dual rate spring
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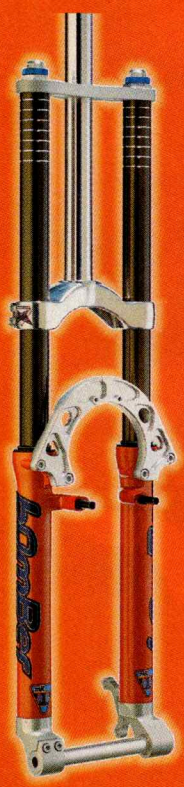

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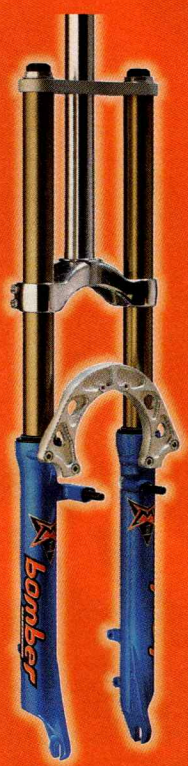

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Juli's the Best

Your "The Best (and Worst) of Mountain Biking" story [June, '97] was okay except for the "Best People." How could you put Juli Furtado in the "Worst" category? We saw Juli at her best at Mammoth three years ago, beating the field hands down and then signing autographs. The next time we saw her was beating the future Olympic champ [Paola Pezzo]—in fact, Juli waited for her to make it look like a race. Plus, while she was doing this she was waving to the crowd and giving us feedback on the race as she went by.

At the Olympics it was super hot. We were there, and we drank *seven* bottles of water, and we were just watching! After the women's race, when most of the crowd's attention was directed to the awards presentation, Juli was in the crowd signing autographs on tickets, T-shirts, water bottles and anything else she was asked to sign. It took a brave woman to do this after her worst race ever. Juli Furtado is number one in our house!

As a fan, one must remember the rights of others. Don't go chasing after the riders. If they look like they want to talk or sign an autograph, then ask. Most teams have signing booths at the races. That is the time to ask and talk. Let them be mountain bike riders the rest of the time. *Mountain Biker*, you are wrong about Juli Furtado. In fact, the rest of your magazine might be wrong too. Save your postage; we cancel our subscription.

Robert and Tammy Franklin
Merced, CA

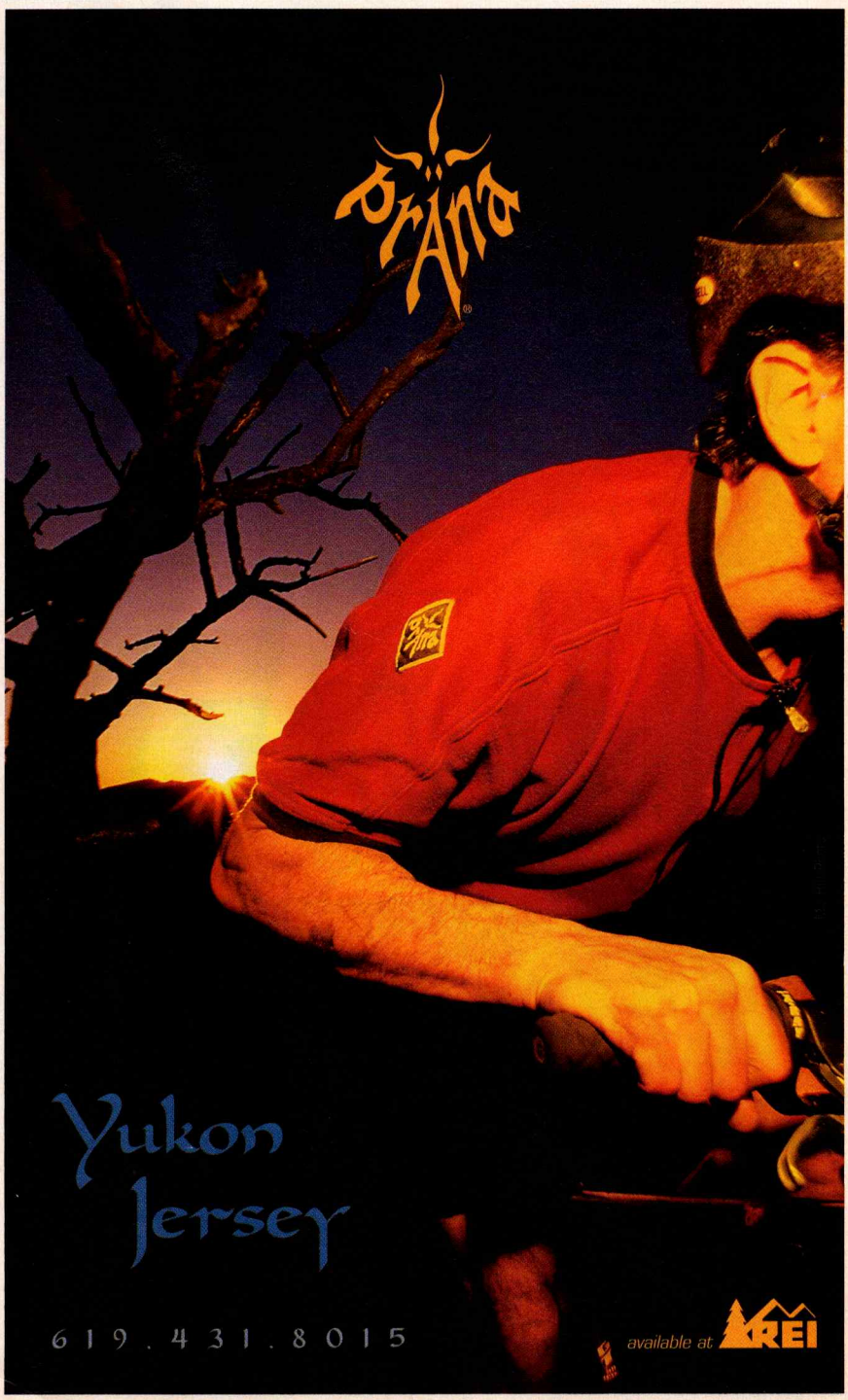
Dog Abuse

I was an avid bike rider about a year and half ago, but acquired monoarticual arthritis in my ankle and feet. I sprained my ankle a few times, and even tore the ligaments in half, and my bike riding seems to aggravate the injury. My ankle often hurts, and sometimes my feet and even my knees do as well—sometimes to the point where I have to stop riding. Have other people acquired this problem from mountain biking?

Barry Leone
Via Internet

While cycling is often a gentler sport to individuals experiencing the discomfort of arthritis, hard off-road cycling may be an exception. During road cycling, your foot stays somewhat static on the pedal and your pedaling technique is much more controlled and rhythmical. The complete opposite is true in off-road cycling, in which your foot is put under more severe loads—side, fore and aft. This is due to the nature of the pedaling, where cadences are often changed dramatically; the riding position is altered between sitting and standing (often in awkward positions, which puts stress on the ankles); and the loads are sometimes higher (roadies spin more than mountain bikers).

I'll suggest a few treatment options as an overview, but must stress that they are not meant to be used without the advice of a physician. If you want to continue off-road cycling, try using a downhill-type shoe with extra ankle support. Also try orthotics, which will help decrease abnor-



mal biomechanical stress on the ankle joint. Finally, increase the range of motion and flexibility of your joints with physical therapy or surgery (maintaining flexibility helps reduce the pain). For pain and inflammation, take aspirin or nonsteroidal anti-inflammatory drugs (NSAIDs) like Indosin, Naprosyn or Advil.—Edmund R. Burke, Ph.D.

Playing Fair?

Regarding your May '97 article which compares four full-suspension bikes ("Breaking the Bank"), comparing the Trek Y3 to the GT STS-1 is like asking me to race against Tinker Juarez. I may be a fine biker, and the Trek may be a fine bike, but we just can't win. If you're going to compare bikes, you should use models of similar quality and value. The Trek had no chance against any of the other three bikes you tested, except that it has a wicked-low price. Next time, try to make it fair.

Spencer Powlison
Underhill, VT

Actually, Spencer, the whole point of the story was to compare four full-suspension bikes from different price points, and to see what the differences were. Sorry if that wasn't clear. In addition to the $899 Trek and the $4199 GT, we included a $2655 Cannondale Super V 2000 and a $2199 Schwinn Homegrown Factory Suspension LXT. The Trek actually fared quite well, and not just because of its price. As for Tinker, don't feel bad; you're probably not as expensive as he is, either.—Ed.

Punk is Dead

Regarding "Bad Boys of Mountain Biking" [April '97], our sport is about knobby tires, dirt, mud and rocks. It's about challenging ascents, exhilarating descents and high technology. It's about the peace and beauty of the wilderness. It's *not* about tattoos, nose rings, body piercing, chain dog-collars and dead-fish jewelry. That niche is filled by punk rockers and Nazi skinheads.

Keep up the great tests, how-tos and photography. I loved "Caught!" and (usually) thoroughly enjoy every issue.

Dennis J. O'Donnell
Oak Ridge, NJ

Fan Mail

Just finished your latest issue—packed with good information! Nice job. Who is this Marc Taylor? Really seems to know his stuff.

C.M. Wilkerson
Via Internet

Also known as Dr. Lowtech, and as the owner of Torrance, California's Cycle Connection, Marc does indeed know his stuff.—Ed.

Address letters to Mountain Biker *"Mail," 6420 Wilshire Blvd., 17th Floor, Los Angeles, CA 90048-5515. You can also fax us at (213)782-2372, or e-mail us at MTBmail@petersenpub.com. Please include your name and phone number for verification. E-mail users should also include permission to reprint their submissions. Technical questions are answered by Marc Taylor, a professional mechanic with 16 years' experience and proprietor of Cycle Connection in Torrance, California. All letters are subject to editing for length and clarity.*

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SUSPENSION FORK

Dragan

It was while living in Mexico several years ago that Erwin Dragan first hit upon the idea of making a suspension fork. "My friends and I would ride these long, brutal downhills, and the forks available then were not up to the abuse," says Dragan. After witnessing several fail, the mechanical engineer (who was at the time working for Gabriel automotive suspension design) began building an MTB fork he hoped would survive in the rough terrain. What he came up with is a 4-inch-travel unit (2.5- and 6-inch versions are available as well) with heavy-duty construction and a simple, air-sprung, hydraulically damped design (to minimize periodic parts replacement).

Spring preload is set by adjusting air pressure, and you can tweak compression progressiveness by altering the size of the internal air chamber. The latter change is achieved by either adding and removing oil, or raising and lowering a floating piston (a smaller air chamber equals a more progressive rate). As for damping adjustments, they're made by using different oil weights.

TOM WEBB

Yea: Since the Dragan fork is such a departure from the norm, we put some serious miles on it in an effort to learn its ins and outs (pun intended); we even spent a few days with Dragan himself and company technician Gerald Leighton. We found the Dragan met both of its designers goals; the fork is bombproof and requires minimal maintenance. The sturdy construction virtually eliminates flex, and on huge, low-speed compression hits, bottoming is nonexistent (not surprising, since Leighton routinely gets more air than the Goodyear blimp). And if you've got a suspension hand pump (about $50) and enough oil, you can make adjustments until the cows come home.

Nay: All that strength comes at a price—two actually; the $550 retail tag is not cheap, and the 4.5-pound weight is not light (especially for an air-sprung fork). Also, the action is not nearly as impressive in the smaller (normal-sized) bumps that make up most rides; deflection and harshness were so noticeable on cross-grain ruts and in rocks that by the time the occasional monster hit *did* come along, we didn't have the confidence to hit it with the force we knew the fork could withstand. And though a zip-tie on the stanchions confirmed that the fork indeed attained full travel, it felt nowhere near that much while riding. Initial setup is difficult even if you've spent some time futzing with suspension forks, and with no external adjustments, tuning was a hassle. **Dynamic Control Systems,** (619)949-0900.

—Chris Jonnum with Joel Smith

STEERING-DAMPER

Answer Accu-Trax

In motorcycling, high speeds and bumpy terrain make for steering headshake, and it's a serious problem. At speed, the front end will start dancing, evolving from a gentle shimmy into a full-blown side-to-side whip. It's long been thought that bicycles, because of their lower speed, don't suffer from excessive headshake and thus don't require devices like steering dampers to improve speed-related handling. But with the advent of DH racing and the high velocities these riders attain, some companies are seeing a new market developing for steering dampers; one such company is suspension-fork manufacturer Answer.

Answer's Tim Hopey realized that the biggest drawback to other bicycle steering damper units was that the damping functioned not only when turning the handlebar to one side, but also when returning it to center afterward. This made the bike difficult to steer at low speeds—because you had to manually return the bar to center instead of letting it occur naturally—and gave the bike a heavy, cumbersome feel. This is unacceptable on a motorcycle and worse for a cyclist. The Accu-Trax' advantage is that it adds resistance only when turning the bar away from center.

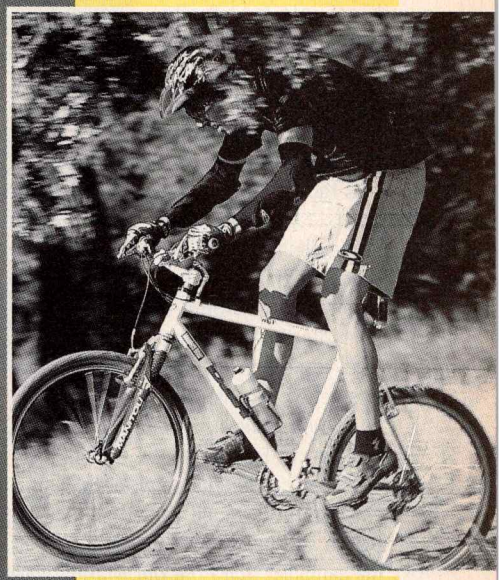
Another feature that the Accu-Trax offers is adjustability. There's an easy-to-use dial located on top of the damper and the range of control is wide. On one extreme, you have no friction, but damping is increased dramatically with only a few turns. The unit fits unobtrusively down in the steerer tube and models for both 1 1/8- and 1 1/4-inch headsets are available.

Yea: I tested the Accu-Trax damper on a Diamondback hardtail, so while I didn't reach the speeds I could on a downhill race bike, I figured the test would certainly be more applicable to the 95 percent of us who don't own a dedicated DH bike. Anyway, it was instantly evident that you don't need to ride at Mach 10 to notice the benefits of the damper. I was surprised at how much damping I wanted. I incrementally turned the adjuster until it was at full

damping, and was rewarded with increased control, especially in extremely rocky terrain. The wheel never bounced wildly off unseen obstacles and I felt that I could hold the bar less tightly. Only at very low speeds did I feel the need to decrease damping.

Nay: The only things I'd want to change are the adjustment dial and the price. The Accu-Trax is rather expensive at $249, and the dial doesn't have detents and moves so easily that I unknowingly changed the damping by simply brushing against it. And as for a weight penalty, 9 ounces is negligible—especially since it's offset by increased rider confidence and energy savings. **Answer Products**, (805)257-4411.

—J.S.



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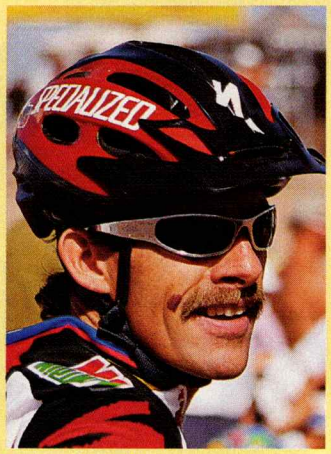

Gatorz Aids Ned

Looking to put your heart-rate monitor to work? Why not head out to Colorado on August 2 and compete in the annual **Pikes Peak Mountain Bike Challenge**? The race begins at almost 11,000 feet above sea level and quickly ascends another 3000 before finishing some 8 miles up the mountain. Last year's fastest time was set by Eugene, Oregon's Rob Templin, who finished in 55 minutes and 22 seconds. The entry fee is $30; interested parties should call (719)634-7333. • Before you head to Moab this year, pick up the pamphlet ***Don't Die Out There!*** Published by the Canyon Country Partnership, the brochure is designed to help mountain bikers and hikers avoid making mistakes in the unforgiving local environs. To receive a copy, stop by a Moab bike shop or call (801)259-4056. • Riding in new areas is always fun, but finding good trails can be a major hassle. If you're heading to Arizona, though, pick up ***Fat Tire Tales and Trails***, and you'll be tearing through the desert in no time. Besides the usual trail maps, there are also skill and fear ratings, as well as pages upon pages of nonserious bike prose. E-mail writer Cosmic Ray at cosray@aol.com for more information. • Look who's wearing Gatorz! It's **"Deadly Nedly" Overend**, who hasn't let semi-retirement stop him from signing up to sport the aluminum billet shades. • Just when we start to think **road bike racing is really cool**, along comes something from UCI—the cycling federation that governs both international road and mountain bike racing—to prove us wrong. This time, it's UCI's general road biking rules that caught our attention. Here are some standouts: The handlebars can't be higher than the seat; the structure of the bicycle must be a triangle; no technical innovation may be used until it's approved by the UCI; and then finally, no one has the right to appeal a decision of the UCI. Can you say *gestapo?* In a related note, the UCI's ban, which stops NORBA from holding national championship events in conjunction with **World Cup events**, is making waves with racers. The new scheduling requires racers to travel to 11 races to compete in both series' U.S. events, versus 6 the previous season. • Legendary distance rider **John Stamstad** is once again going to extremes. Now sponsored by Trebron—a prototype mountain bike fitted with Cane Creek's new Crono wheels—Stamstad won the Iditasport Extreme human-powered ultramarathon race (not to be confused with the Iditabike MTB race). Stamstad required six days to complete the 350-mile event, in which competitors bike or ski on unmarked Alaskan trails and camp out in the snow; riders must carry all their own gear for the entire event. • Gullickson has signed with Jamis! No, not Marc Gullickson; similar to the racing Grewal brothers, the Gullicksons consist of GT's Marc, accomplished road racer Noah and now Eric—a member of last year's winning 24 Hours of Canaan squad. • How much is enough? Mad tinkerer Dan Hanebrink is now offering a **suspension fork with an amazing 10 inches of travel**! Based on his LT-6 fork, the high-rise initially started life as a one-off for a 250-pound pro DH customer, but there's been enough interest to warrant production. The price? $273 per inch. • **Schwinn Bicycles may be up for sale**. At least that's what we learned from a recent press release, saying that Scott USA, which purchased the company in '83 is "exploring a broad range of strategic alternatives, including the sale of Schwinn."

SURF REPORT: our monthly online guide

Litespeed Bicycles

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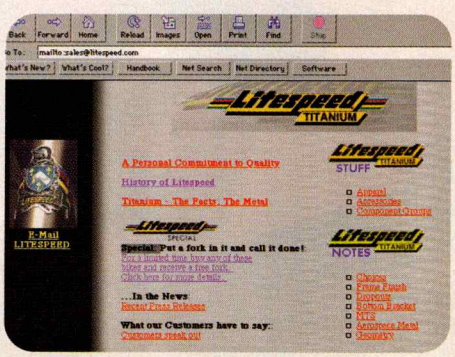
Like most bicycle company Web sites, Litespeed's offers much in the way of product information. There are listings on all 40 of the company's titanium bikes, plus component and custom options to go with each. It may look like a rehashing of what's in the catalog, but if you delve within each bike category there's a gamut of superhelpful advice for anyone looking to buy a Ti bike. If you're not ready for a new ride, check out the history section; it provides info about both the company and the area around its Chattanooga, Tennessee, headquarters. And if that's still not enough, there's also cataloging of Litespeed's on- and off-the-bike clothing—along with pricing—and an easy-to-use e-mail link for Q&A with Litespeed.



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A Sneak Peek at '98 Shimano Components

Though we've already shown you bits and pieces of Shimano's new component line for next year, here's a full rundown of changes to the '98 mountain groups.

Shifters and Derailleurs:

All '98 XTR RapidFire shifters will have cable inserts that allow for the use of a new remote bar-end shifter. The shifter, which has been tested on the race circuit this year, allows riders to shift the rear derailleur from the right bar-end. In addition, Shimano has a new reverse-spring rear derailleur, called the Rapid Rise derailleur, which functions with any current 8-speed XTR shifter, but uses a reverse shifting pattern; upshifts are made via the forward-mounted shifter paddle. The new derailleur has an Avid Rollamajig-like pulley which is said to decrease cable friction by 10 percent and only adds 20 grams to the derailleur's overall weight.

Brakes:

In order to eliminate flex in the fork and seatstays—a common problem with the powerful V-Brake—Shimano will produce a carbon-fiber brake booster. The brace will likely cost $60 per brake and is also said to eliminate squeal caused by bushing wear in the brake's parallel-push linkage.

Rapid-rise reverse spring rear derailleur.

Crank and Bottom Bracket:

Though Shimano has been slow to enter the downhill market, next year the company will introduce a single-chainring crank for downhill use. Not only will the new unit lower Q-factor—the measurement of the distance between the bottom-bracket shell and the pedal—but the crank will use the current XTR splined bottom bracket. Shimano will offer five different 4-bolt chainrings: 46, 48, 50, 52 and 54 teeth. A new cartridge-style BB will be offered next year in addition to the serviceable splined unit. The new model will allow the use of Shimano's traditional BB tool.

Remote bar-end shifter for XTR group.

Roller Brake:

We've heard about it for two years running, but Shimano now says the downhill hub roller brake is finally ready for public consumption. The company is using the brake on the World Cup DH circuit. Designer Wayne Stetina tells us the brake is heavier than most of today's disc brakes and is "dramatically more powerful than the V-Brake."

Anti-Lock Brake:

For the lower-end groups, including the city-use Nexave line, Shimano has a new V-Brake with a modulation control that functions like an anti-lock brake. As the brake is applied, a link on the brake arm decreases cable tension slightly just before the brakes are locked. The special lever has three different power settings and is long enough for use with three fingers.

STX 4-Arm Crank:

The four-arm chainring spider is making its way to the lower-end groups, this time on STX-RC level components. The crank is said to lower weight considerably versus last year's cranks. STX will also be receiving a V-Brake lever update. In lieu of the lever with three-position cable adjustment—previously used with both LX and STX-RC—the new STX-RC lever has two positions and a cantilever-style brake pad.

In Transit

We realized after spending five days at the Cactus Cup race in the Arizona desert that standing in the sun can seriously zap your energy. And to make matters worse, it's normally difficult to find a cool, shady place to escape the heat. But a not-so-new invention that solves the problem of finding a raceside oasis is making inroads in the world of mountain biking; luckily, we remembered to bring it along for our trip to Scottsdale. Popularized by motocrossers who typically have long lag times between races, the pop-up awning provides a welcome respite from the summer sun and the winter rain.

A new version to hit the market is FTM Enterprise's Add-Awn Sport Shade. The Add-Awn frame is built out of lightweight 6061 aluminum tubing, with telescoping legs and a cover that's constructed of thick and durable fire-retardant nylon and waterproof pack cloth. It's available in two models; the first ($330) fits in the bed of a pickup truck and the second (tested here—$299) attaches to either a roof-mounted bike rack or any other secure, round bar (we used the guard rail on our enclosed trailer). You can choose from either red, blue or camouflage.

It takes a few practice runs to learn the Sport Shade's setup rigmarole, but once you figure out what goes where when, the unit takes only a few minutes to put together, and it provides plenty of shady space to work on bikes or sit in lawn chairs and talk shop. Included are bags to fill with rocks and secure the awning on hard surfaces, or you can use the supplied spikes to stake it down to softer ground. The best part about it is that everything collapses to fit in a small bag for easy transporting. **FTM Enterprises,** (619)732-3161.

Add-Awn Sport Shade

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Jumping the Gun

Lacking the patience to wait for the first World Cup downhill (a month and a half after the cross-country opener), several companies capitalized on the Napa XC race (see story in this issue) to unveil new team DH bikes. Pro-Flex's cross-country rigs (1) don't use linkage and have interrupted seat tubes; similarly, Nick Feid's Pro-Flex DH mount has the Noleen shock mounted directly to the swingarm and frame, and passing through a port in the seat tube. Giant has been working with a special aluminum-beamed downhiller (2) which uses the same basic S-link suspension design as its composite MCM990. John Tomac's bike will have an Answer shock, steering damper and dual-crown fork. Santa Cruz's Heckler downhiller (3) uses a Risse inverted, dual-crown fork and a huge, box-section swingarm, (though we couldn't help but notice the diminutive rear dropouts.)

Downhillers weren't the only ones with new stuff. The man who many point to as the inventor of the mountain bike has decided to reinvent it, as Gary Fisher's Genesis project is taking a whole new look at MTB geometry. "There have always been small differences in frame geometry for big differences in rider size," said Fisher's Joe Vadeboncoeur when we met with him at the Napa World Cup. "We decided to take a fresh look, with our premise being 'Shouldn't all riders have the same length stem?' "

While the answer was ultimately no, Fisher engineers did decide that the variance should be less than what it is now. Currently, taller riders are forced to use much longer stems than average-sized riders, and when steering, their more forward-positioned hands must swing in an arc in front of the steerer tube (rather than simply pivot around it). The Genesis bikes (4) have shorter stems for improved steering and shorter chainstays for better climbing, but make up the wheelbase and cockpit room via a longer top tube.

"A lot of what we came up with doesn't make sense," said Vadeboncoeur, "but it works well when you take it out and ride it." Fisher team riders are already doing just that (though Paola Pezzo rode her standard OCLV frame at Napa, since her Genesis bike was stolen the week before the race), and the company's entire '98 lineup (with the exception of sub-$800 hardtails) will utilize the new geometry.

Incidentally, Fisher is also developing a '98 freeride bike, tentatively called the Level Betty, which will sport disc brakes, riser bars and a dual-crown fork.

Environmental Knotes

Fat-tire pioneer Gary Fisher recently spoke at the Wisconsin Bike Advocacy Conference and called for a return to the bicycle as the "common man's transportation." IMBA vice president Mary Monroe also addressed advocates and noted that with the current increases in mountain biking's ranks, more trails will have to be opened; she mentioned, however, that the trend has actually been to close more trails. • Health sucks! In spite of a commitment to the League of American Bicyclists, Amtrak has turned baggage cars that were slated to allow roll-on access to bicycles, into smoking cars. • Suspension maker RockShox has developed and paid for a new trail-maintenance tool which will be given to clubs that have built or reopened more than 800 miles of trails last year. The tools will be powder-coated Judy red. • PowerBar announced that it is providing $10,000 to improve the water system at Skyline Park, site of the '97 and '98 XC World Cup races. • Pioneer Joe Breeze and the Earth Pledge Foundation have teamed up to build a Web site (www.earthpledge.org.mall.breezer) promoting the bicycle as a means to sustain our future.

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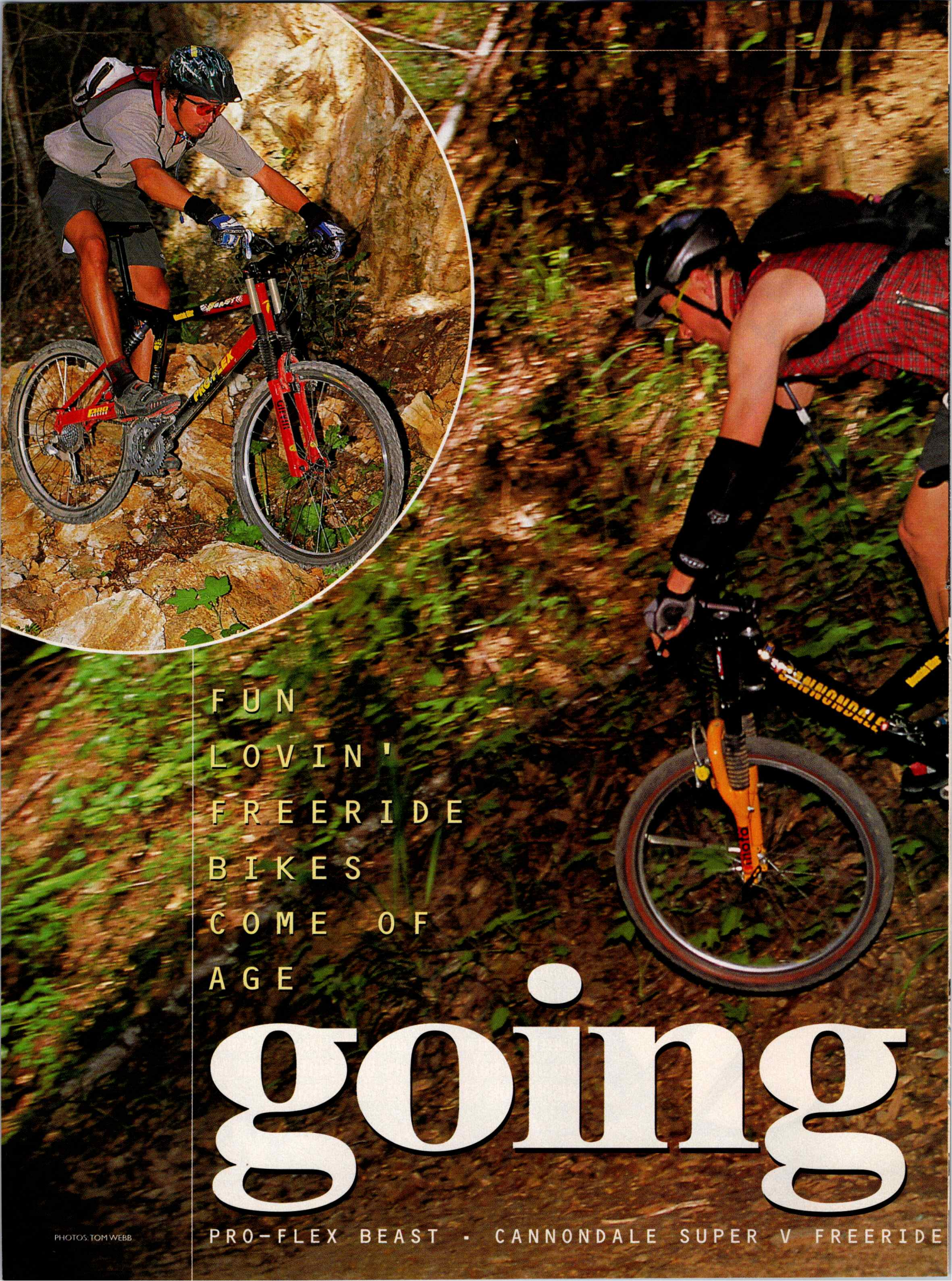

FUN LOVIN' FREERIDE BIKES COME OF AGE

going

PRO-FLEX BEAST • CANNONDALE SUPER V FREERIDE

PHOTOS: TOM WEBB

Why did pioneers Gary Fisher and Joe Breeze leave the pavement and head into the dirt on bicycles? It's really a simple question with an equally simple answer. The duo strapped motorcycle brakes and oversize tires on old bikes because fire roads offered something more than did the confines of pavement. In a word: fun. Twenty-some years later, though, mountain biking is in a quandary. We have two distinct disciplines developing, cross-country and downhill, with the racing side of things driving the development of new equipment for both. But where does this leave the 95 percent of mountain bikers out there who don't race and as a result, don't fall into either of these categories?

The big companies are already realizing that not everyone wants to buy a Shaun Palmer replica DH bike or Alison Sydor's XC rig, and a new facet of the sport is developing: freeriding. New bikes are slowly filtering in, with longer travel—3 or more inches front and rear—riser bars, and powerful brakes. Of course, the bikes are biased to downhilling (isn't that where most of the fun is had anyway?), but more importantly, they are designed to be great all-around bikes. Perhaps this new development isn't really new after all; it's what Fisher and Breeze were after in the first place.

When we think of freeride bikes, the first company that comes to mind is Pro-Flex. The East Coast manufacturer is one of the first to recognize and promote freeriding, producing two bikes that use dual-crown suspension forks, riser bars and powerful Magura hydraulic rim brakes a full year ahead of any of the other big companies. We tested the high-end Animal in a previous issue, and now it's time for a look at the lower-priced Beast. Another company delving into the freeride game is Cannondale, and we managed to snag a prototype version of next year's bike for some early testing. The final two bikes tested here are Titus' Quasi-Moto and Kona's King Kickapu. As a bonus, we traveled to the hills outside San Francisco to test the bikes, in addition to the hammering we did on our home trails. →

long!

· KONA KING KICKAPU · TITUS QUASI-MOTO

JOEL SMITH

TITUS QUASI-MOTO

Company: Titus Titanium has been located in Tempe, Arizona, since its 1990 founding, and the company's emphasis is designing and building its own bikes. The Quasi-Moto, for example, was designed by company president and founder Chris Cocalis and head designer Mike Mayberry, and is all hand-welded in house. Originally, the bulk of Titus' business came from building one-off team bikes for larger bicycle companies—such as Univega—and it continues to do so to this day. About a year ago, though, the company shifted its focus to its name-brand bikes.

Design: Like many of today's long-travel suspension designs, the Quasi-Moto features adjustable linkage and shock positioning, which allows you to choose between multiple suspension settings. Adjusting the linkage allows you to select between a rising/falling rate and a full rising rate. Since we used a coil-over spring shock, Titus recommended the former setting, which it said would provide the most plush overall feel.

Depending on shock positioning, you can select either 4 1/2 or 5 1/2 inches of travel. We kept our test bike at the latter length, combined with a White Brothers Pro Forx 110-millimeter-travel fork. Varying shock location also affects a number of other things, and with our setting, the wheelbase and bottom bracket height increased while both the head and seat tube angles slackened—all factors which allow for better handling at speed.

Though you'd guess from its name that Titus only builds with titanium, our Quasi-Moto was in fact built with Alcoa Alcalyte 6013 tubing. The swingarm also uses aluminum, box Alcalyte tubes. Of course there's a titanium version available, but Cocalis says it's slightly heavier than the aluminum model.

Suspension: Up front, the Quasi-Moto uses the aforementioned White Brothers dual-crown fork with coil springs and an adjustable oil damper. Out back, it's Fox's Vanilla RX coil shock with adjustable rebound damping.

Components: Our test bike came equipped with only the finest components, including a number of products we had never tried before. The Cane Creek ChronoMetro wheelset and Avid Arch Supreme brakes both fit into this category and are eye-catching to boot. Otherwise, the bike used a near complete XTR drivetrain, excluding the Grip Shift SRT800 twist shifters by SRAM.

At a Glance

Price: $1875 (frame)
Weight: 29 lb 9 oz
Size tested: Large
Frame: Alcoa Alcalyte 6013-T6 aluminum
Fork: White Brothers Pro Forx DC110
Shock: Fox Vanilla RX
Shifters: SRAM Grip Shift SRT800
Derailleurs: Shimano XTR
Brakes: Avid Arch Supreme
Contact: (602)894-8452; www.titusti.com

Titus Quasi-Moto Autopsies

The Quasi-Moto is an excellent bike. It has the best rear-suspension system and, with the changeable linkage and shock positioning, it can be set up any way you like it. With ours, the rear end would soak up small, midsize and big bumps with such ease that I found myself descending at the same speed that I would on a full-blown DH bike. The only fault I could come up with is that the suspension wallows too deeply in its travel over midsize bumps. And with the rear end down in its travel, the front end is kicked out, so the handling slows considerably.

Up front, the Quasi uses White Brothers' 110-millimeter dual-crown fork, which has very little stiction and offers a great deal of rigidity. The fork isn't as active as the Marzocchi Bomber Z.1, but it also doesn't bob as much on the climbs, and turns better because it doesn't dive excessively. Still, I think a slightly longer-travel fork would have better balanced the suspension for downhills.

The Titus is actually a relatively good climber. As long as you stay in a gear that keeps the suspension loaded with chain torque—basically when you're in the middle and big chainrings—the rear end grasshoppers only slightly. The lack of bobbing is most noticeable when you stand and sprint

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2) Revolt tires feel fast
A gear everywhere.

3) Revolt tires weigh less
Save as much as 100 grams per wheel.

4) Revolt tires corner
These tires corner fast and hard.

5) Revolt tires climb
As good or better than what you get with a conventional knobby.

6) Revolt tires will last
Short knobs and truncated diamond tread patterns give a very good service life.

But there are some limitations on them in certain terrain: Revolts are not ideal for gravel, loose rock, and some extreme technical riding. (Where Bontrager Jones tires excel) But when the ride takes you through a little of those and a lot of the other, a little experience with Revolts is all you need.

Bottom line, the revolt™ has changed the rules, if not the world.

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on flats and slight declines.

Ergonomics play a big role in my bike preferences, and on this point, the Titus isn't to my liking. The 22-inch effective top tube length (the seat tube is 21 inches, center to top) was entirely too short for me, which necessitated installing a longer (135-millimeter) stem—something I typically don't like to do because steering is better when the bars are directly over the fork tubes. Even with the longer stem and the seat pushed back on its rails, the cockpit felt too compact, which forced me too far forward over the front end when sitting. Of course, it felt pretty good like this when I climbed because it put my body directly over the bottom bracket.

It may sound like I'm complaining a lot about the Titus, but that's only because it does so much and I spent more time on it than any other bike (mainly because I like it a ton). It is very close to perfection, both as a freeride and a downhill bike, and the nitpicky things I would change could make it perfect, where the other bikes would just be darn good with modifications. If I could scrape up the bucks to buy one of the superexpensive frames and then outfit it with equally spendy parts like our bike had, I know I would be in fat-tire heaven with the Quasi-Moto.

—Joel Smith, 28, 6-2, 190 lb, Expert

One run down Half Moon Bay's Purisima Trail aboard the Quasi-Moto, and I was certain it was aptly named: Such was the Titus' performance on the descent that I confused it with the Yamaha WR250—my favorite motorcycle in a recent *Dirt Rider* shootout I helped out with. One portion of the downhill is a rock- and rut-ravaged sluice; while the Titus' stalwart frame probably wouldn't yield for a Peterbilt, its submissive suspension allowed both wheels to faithfully trace the terrain's every contour, which in turn let the binders proudly exhibit their unlikely combination of strength and feel. These are all traits shared by the WR, but what I had *really* liked about that motorcycle was its low-slung, flickable feel—vital when you're whipping from side to side through tight singletrack. Again, on Purisma's winding singletrack portion, the Titus' roomy stand-over height and exact steering had me reminiscing over the Yami.

Of course clawing my way back up Purisima quickly reminded me that I definitely wasn't on the motorcycle—and it wasn't just the lack of a motor that gave it away. Being cursed with the physique of Manute Bol, I loved the roomy rider compartment of the Yamaha, while the stubby top tube of our size-large Titus had me riding bow-legged to prevent my knees from banging on the fork's upper crown. I could disregard the cramped feel on descents, but it was too confining for going up.

The bike's brand name is less appropriate

than the model name: This thing is no tight-ass. In fact, our test unit's spec list contained several of my favorite dream parts. The Fox Vanilla RX shock, White Brothers Pro-Forx, Cane Creek hoops, Avid Arch Deluxe brakes and XTR group all function exquisitely but will set you back a firstborn. I'm not sure what the cost would be to build up the $1875 frame like this, but have to think it would approach the five-grand mark—dangerously close to the $5599 Yamaha.

—Chris Jonnum, 6-3, 170lb, Sport

TOM WEBB

Thanks in part to a plethora of high-end components, the Titus Quasi-Moto screams on descents.

Pro-Flex Beast Autopsies

It's hard to find fault with the Beast, especially when you compare it to other bikes in this test that cost considerably more. You can tell Pro-Flex didn't skimp either: The Magura hydraulic brakes, Girvin clipless pedals and SRAM shifters and derailleurs are all great products, regardless of what price bike they're fitted on. In fact, the Beast's shifting, brakes and pedals required less attention than those on any of the other test bikes.

But let's face the facts; you can't have everything perfect unless you are willing to seriously dent your bank account, and as a result, the Beast does have its deficiencies. The Chubby fork is plagued with an abnormal amount of stiction, which does decrease dramatically when it's lubed, and it feels severely

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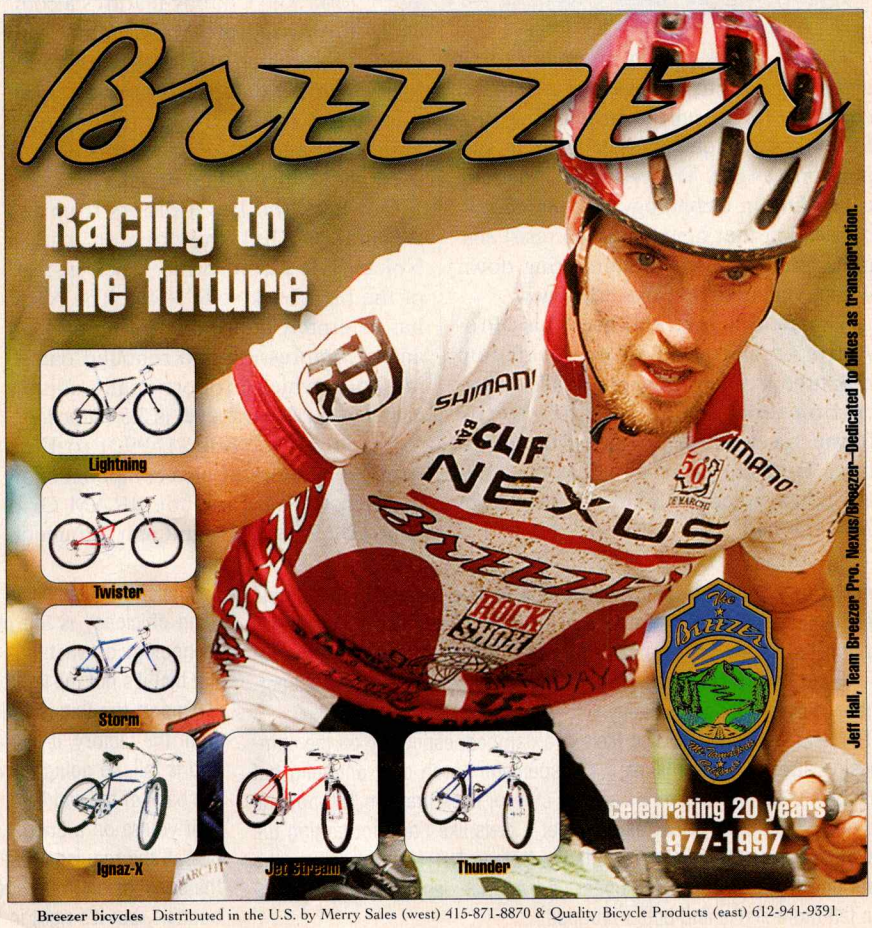

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Mountain Biker tested

PRO-FLEX BEAST

Company: Rhode Island–based Pro-Flex is best known for jump-starting the revolution to suspension, first with the Flexstem suspension stem, and soon after with a full commitment, by becoming the first company to mass produce a full-suspension bike. Pro-Flex continued this trend by pursuing the cross-country market with its suspension bikes when most companies were still debating the merits of front suspension. In this tradition, Pro-Flex is leading the charge in new arenas with its extreme series of bikes like the Beast.

Design: Unlike many companies that are trying hard to find ways to cancel out chainline forces on the suspension, Pro-Flex takes a unique approach with its suspension designs. The result is something called Dig-In technology, a patented pivot location that helps the bike resist suspension movement by hunkering down with pedaling to improve efficiency.

The Beast's rear end uses this "Pro-Active" rear end, and has a beefed-up box-tube swingarm (upgradeable to the carbon unit) which attaches to the frame via oversize pivots on the down tube. Both the front and rear triangles are constructed with Easton ProGram 7005 tubing.

Suspension: The Beast's front end is controlled by Girvin's own Pipeline Chubby dual-crown fork. The Chubby features a combination of MCU and coil springs, external preload caps and a lightweight air damper. It provides a full 4 inches of travel (though it's upgradeable to 5) and is the same fork that is used on the high-end Animal.

Out back the Beast differs from the Animal in that the former uses a Noleen NR-2 coil-spring shock instead of the piggyback-style NR-4. The NR-2 has externally adjustable spring preload and a compression and rebound damping knob which proportionally adjusts each circuit. Rear travel is 3.5 inches.

Components: For $1699, Pro-Flex spec'd a plethora of nice components on the Beast. These include SRAM Grip Shift ESP 7.0 shifters and rear derailleur, Magura HS-11 hydraulic rim brakes and a Sugino Impel 500 crank (with a Girvin logo on it). There's even the necessary Titec Hell Bent riser bar, and if you look where companies try to hide the cheap stuff, like the bottom bracket and spokes, the Beast also has quality goods.

At a Glance

Price: $1699
Weight: 31 lb 2 oz
Size tested: Way Big
Frame: Easton ProGram 7005 aluminum
Fork: Girvin Pipeline Chubby
Shock: Noleen NR-2
Shifters: SRAM Grip Shift ESP 7.0
Derailleurs: Shimano Deore LX (f), SRAM Grip Shift ESP 7.0 (r)
Brakes: Magura HS-11
Contact: (401)765-0130; www.girvin.com

undersprung and overdamped on rebound. We installed a Mountain Speed coil-spring kit in the fork, which keeps it from diving excessively through its travel, improves overall performance and speeds the rebound, but I still feel like the air damping could be decreased by 20 percent or at least offer adjustability.

The Beast's rear shock also feels overdamped, especially on the compression stroke, which makes the suspension harsh over anything but big hits. The stock coil springs are too stiff for even me (I'm 190 pounds and ride aggressively); the result is that it feels like I am not getting full use of available travel. We installed a Noleen NR-4 shock later—the same unit that comes on the upper-end Animal—and the rear suspension felt more active and better damped.

Since the suspension doesn't move over smaller stuff in stock form, pedaling efficiency is top notch. I'm not sure if it's Pro-Flex's patented Dig-In technology or what, but the bike is easier to climb than the others. Considering that it's not the lightest bike in the test, that's saying something.

One of the things I like best about the Beast is the ergonomics. Straight from the factory, it has a perfect riser bar and stem combination. The front end is tall, so going downhill fast is easy, yet I don't feel like I am falling off the back of the saddle on climbs.

If you're on a budget, there's not a better freeride bike to buy. The Beast has all the requisite features of a long-travel bike, and with a few additions, the suspension improves immensely. Sure, it will never be the Titus or Cannondale, but it's right in the hunt with the Kona and is improved quite easily.

Autopsy continued on page 36

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KONA KING KICKAPU

Company: The group of riders and racers who founded Kona in 1988, did so with the intention of building bikes that better suited the terrain they were riding. Originally, the bikes were high-end custom models only, but over the years the emphasis has shifted to providing bikes at all different levels. Now the company has a 20-bike line that includes the usual array of fullies and hardtails plus a cruiser and a road bike.

One of the things that makes Kona stand out from other bike companies is its focus on advocacy. The company's Buck-a-Bike program, for instance, has netted more than $500,000 since it was started in 1994, with a large chunk of this going to IMBA. Additionally, Kona consistently has a core of top pros at almost every race, in spite of its smaller size.

Design: The King Kickapu has a semi-unified rear triangle with a swingarm that is said to put out 3.5 inches of travel. The forged upper link attaches midway up the interrupted seatstay and, in a nutshell, transfers upward forces on the rear wheel down onto the shock. The frame is constructed with Easton Elite aluminum oversize tubes up front and smaller diameter Easton tubes out back. The angles are rather steep for a bike of its kind, with a 74 degree seat tube angle, and the 42.9-inch (large size only) wheelbase is somewhat short.

Suspension: Marzocchi's Bomber Z.1 boasts 100 millimeters of travel and an open-bath suspension system designed to all but eliminate stiction. Our fork used an Easton Elite aluminum steerer tube and we installed the stiffest springs available. Rear suspension duties are handled by Fox's Alps5R air shock, which requires the use of a special shock pump that can be purchased directly from Fox for $52.

Components: If you look at the Kickapu's component spec, it's obvious that Kona's product managers know what works. The bike already had a World Force 1 1/2-inch riser bar, and the Shimano XT V-Brakes hooked to Avid levers are an excellent choice. Most of the drivetrain is Shimano XT, but for good measure, Kona threw on an XTR changer out back. The bike also came with Wellgo clipless pedals, Mavic 217 rims and Kona's own Scratch and Sniff tires.

At a Glance

Price: $2599
Weight: 29 lb 4 oz
Size tested: 20 in.
Frame: Easton Elite aluminum
Fork: Marzocchi Bomber Z.1
Shock: Fox Alps5R
Shifters: Shimano Deore XT RapidFire SL
Derailleurs: Shimano Deore XT/Shimano Deore XTR (f/r)
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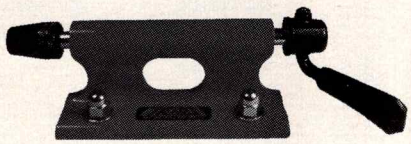

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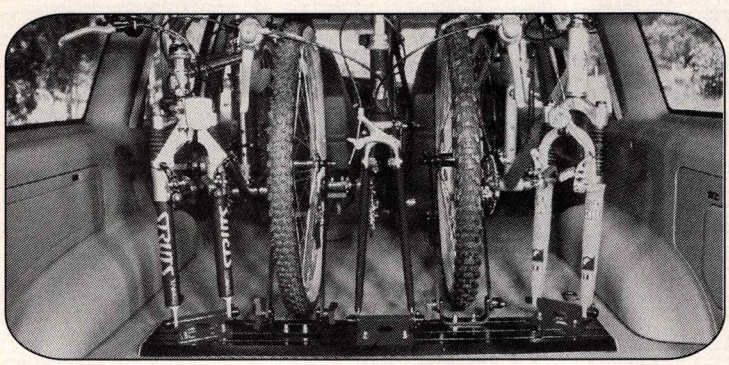

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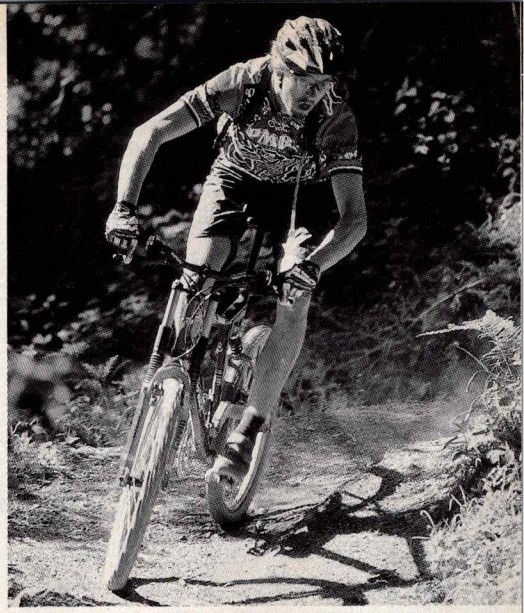

TOM WEBB

Pro-Flex is a pioneer in this market category. Its Animal was the first bike sold specifically for freeriding, and the Beast—piloted here by associate editor Chris Jonnum—is the first freeride model with an eye toward affordability.

Autopsy continued from page 32

And if it requires as little maintenance as the Animal I've been riding for 5 months now, it should make anyone who purchases it a happy customer.

—Joel Smith

What can I say? This bike fits like snakeskin shoes and demands nothing more from the rider than to flog it—hard. The ergos are excellent with a nicely positioned riser bar-stem combination that keeps the front end tall, all the better for nasty descents and conquering ugly terrain. It climbs decently, without a lot of movement (a fact which can be at least partly attributed to the heavily damped shock), and while the fork has large travel, it has a sticky feel to it. Still, the bike does what it's designed to do; it plops, drops, sucks up and navigates uneven, brutal, high-speed, straight-down, rocky and slimy terra firma without a whimper.

I like the Magura brakes (though more easily accessible adjusters would be nice), the Chubby fork is pedestrian (though much improved with Mountain Speed springs) and in spite of the thick-mud feel of the Noleen damper, the Beast has balance and feel. It craves moonscape and rewards the rider with a ride that is all smiles. I guess what I like best is that I can hop on it and enjoy it immediately. The Beast fits and it's fun, and in my mind that's what freeriding is all about.

—Tom Webb, 43, 6-2, 200 lb, Sport Master

Kona King Kickapu Autopsies

I really enjoy riding the Kona Kickapu, and I attribute this almost entirely to the Marzocchi fork. With the heaviest coil springs installed, the fork feels stunning, soaking up the small

brake chatter and big hits easily. And though I feel it dives a bit much when I apply the brakes or weight the front end in a turn, it transmits the most feel back to the rider. With the stiffer spring rate, it isn't horrible to climb either.

The Kickapu uses a semi-unified rear suspension design, which I typically dislike, but it works well with this bike. The rear suspension bobs only a bit when you're seated and climbing, and contrary to URT theory, suspension activity increases (though only slightly) when you stand, so it's no problem spending the day grinding upward. I'm not completely happy with the rear suspension, though. The air-sprung Alps is entirely too progressive, which limits travel and makes the suspension seem unbalanced and harsh over big bumps. While this isn't always a bad thing, with the Kickapu it forces me to adapt to a more forward-biased riding style (typically I position myself over the rear wheel, lifting the front end and letting the rear end soak up big bumps). Retrofitting a Fox Vanilla RX coil shock—with its linear spring rate and external blow-off reservoir—improved suspension performance dramatically.

The saving grace with the Kickapu, at least when I start to descend, is that the general feel of the bike is very comfortable. The bike rarely does anything quirky and the rider compartment fits me perfectly. A slightly shorter 125-millimeter stem improved things a bit, but that was the only change I had to make.

TOM WEBB

Though associate editor Joel Smith liked the overall feel of the Kickapu, he felt that the rear suspension needed to be more active and plush.

The only other real standout I noticed are the brakes. The XT binders are mated to Avid levers and these worked excellently, were hassle-free and offered more modulation than the Shimano-Shimano combinations. And it's also nice to see a riser bar on a bike straight from the factory.

Though I'd typically jump on a bike like the Kickapu, I'd take either the Cannondale or Titus ahead of it, and that's mainly because of the rear suspension. In spite of the sweet Bomber fork, the suspension isn't long or plush enough out back.

—Joel Smith

I can't say its name five times fast, but Kina's Kong Kackapi rates as my favorite of this bunch, nonetheless—primarily because it best handles the compromise that's inherent in this segment of our sport. That's right, so-called *freeriding* is actually anything but; what profit you make on descents is dearly paid for on climbs, a fact the higher weights of the Cannondale, Pro-Flex and Titus make all too evident. True, the Kana Kung Kuckapa is no feather at just under 30 pounds, but it *rides* lighter than the other three, and even hooks up better when traction is scarce. For elevation gain, this is the bike I'd choose every time.

Of course it's equally important that an enjoyable climb not come at the price of a bone-rattling, out-of-control ride down, a truism that really sold me on Kuni's Kang Kockapi. No, it doesn't top my list of descenders (I like the Titus better), but its superior suspension puts the bike ahead of the 'Dale and 'Flex. That's ironic when you consider that the Koni Keng Kuckipo has a single-crown fork and a URT suspension design, both of which are supposed to be inferior descenders to the other bikes' dual crowns and cantilever swingarms. Even more ironically, the fork is actually an *advantage* on the tight switchbacks I like my freeriding to include, as its extra clearance allows for a tighter turning radius. Just goes to prove you can't test a bike from the spec chart.

Still, compromise is unavoidable, and Kina's Kung Keckipe is no exception. Compared to a good coil-over shock, the air-sprung unit has more stiction and isn't as adept at handling big hits, and the superplush fork has a fair amount of movement when climbing—even with the stiffer springs installed. The latter trait is a worthy concession for a good freeride bike, but the former could be avoided. Still, freeriding is a new category (at least in the eyes of marketeers), and I suppose one flaw can be forgiven on a first-year effort. So what if the Kenu Keng Kickupi ties your tongue in knots? Said cycle simply smoothens and straightens serpentine, scabrous singletrack sections.

—Chris Jonnum

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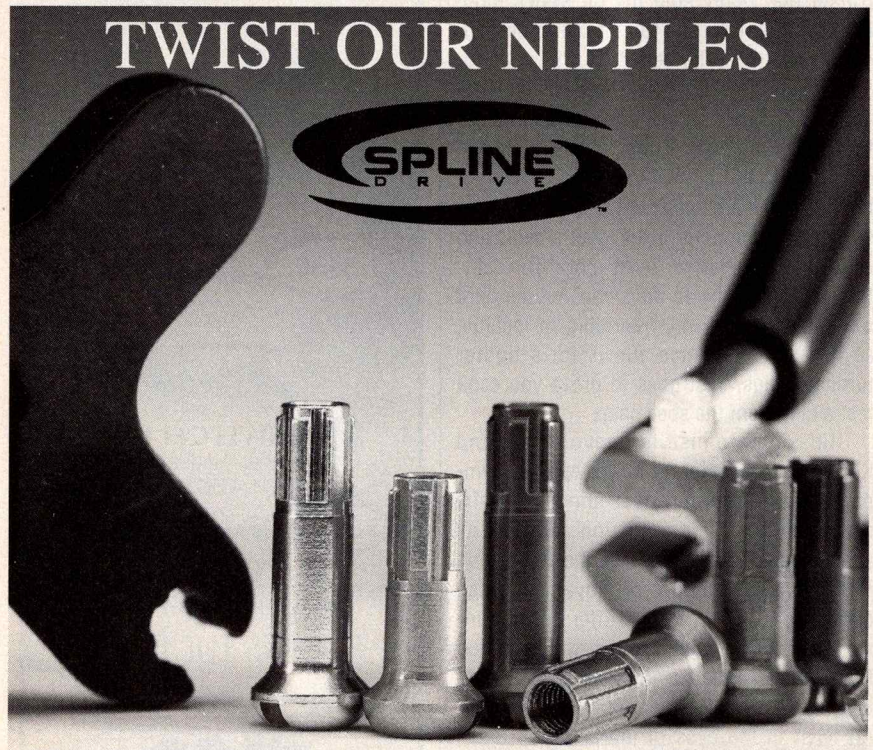

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Company: Cannondale was started by Joseph Montgomery in the Cannondale train station in Wilton, Connecticut, originally producing accessories for cycling, but soon after establishing itself as a high-end aluminum bike manufacturer. Cannondale has continued building only U.S.-made aluminum bikes, and its emphasis has been on expanding the parameters of the material.

Cannondale has never been a company afraid to take chances, from its original mountain bike which featured a 26-inch front wheel and a 24-inch rear to the revolutionary three-chain DH bike we showed you last month, and the company's innovations have brought about expansion on all fronts. Business is growing, and some of the world's best racers ride Cannondale on both road and dirt.

Design: Compared to the other bikes in this test, the Freeride frame more closely resembles a pure downhill bike than just a long-travel full-suspension rig. It has a massive dual-crown fork that is similar (at least in travel) to last year's Moto 120 DH fork, and the rear end is built to put out 120 millimeters of travel. The swingarm pivots are high-quality sealed bearings and as with any Cannondale frame, the Freeride is made in the U.S.

Suspension: The HeadShok Moto suspension fork has received some major improvements since it was first used on the Super V DH bike last year. HeadShok has dropped the motorcycle-style inverted design for a one-piece brake bridge and stanchion tube combination, which is said to increase rigidity dramatically. Though our fork internally resembled the

Cannondale Super V Freeride 2000 Autopsies

The Cannondale is by far the most rigid suspension bike I've ever ridden. The rear end was already flex free, but with the addition of the dual-crown Moto fork, there's never a doubt what the bike is doing. I don't know the facts and figures, but the new fork feels at least 30 percent more rigid than last year's dual-crown model (Moto

CANNONDALE SUPER V FREERIDE 2000

Moto 120 from last year—air sprung with bushings and a low-speed compression adjuster—production models will feature a list of changes; the fork will use needle-bearings and coil springs, while the damping will be biased toward rebound control. The shock on the Freeride was Fox's high-end Vanilla RX, with adjustable rebound and a remote reservoir.

Components: Our prototype bike had a list of high-end components, but the final spec list will differ based on price point (Cannondale plans to sell two different priced Freeride models). For example, while our bike used Magura hydraulics, it's likely that Cannondale will use the CODA disc brake (notice the mounts both front and rear). The CODA cranks, hubs, stem and handlebar are said to remain on the upper-end bike, as will the IRC Missile tires.

At a Glance

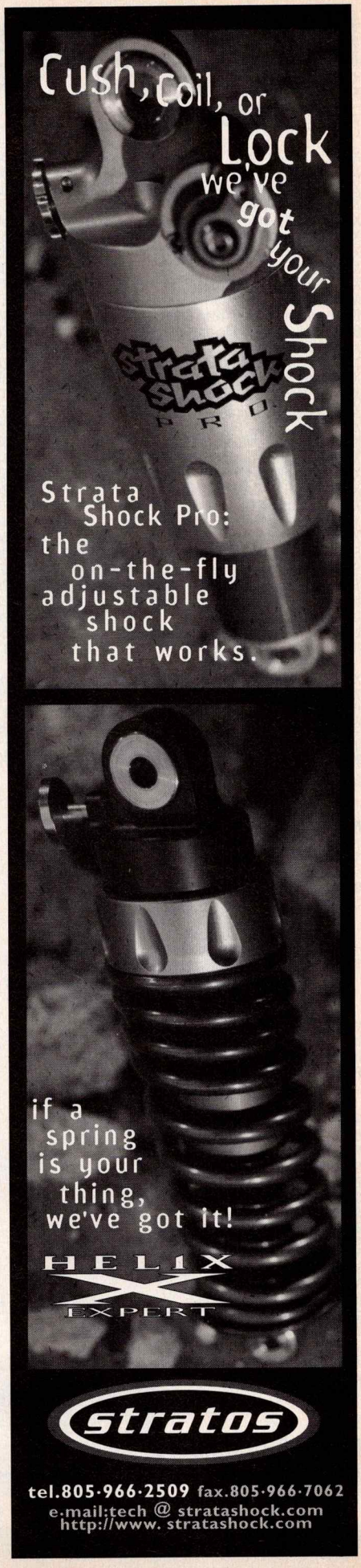
Price: $2800
Weight: 31 lb 8 oz
Size tested: L
Frame: Super V Active Freeride
Fork: HeadShok Moto 100 FR
Shock: Fox Vanilla RX
Shifters: Shimano Deore XT
Derailleurs: Shimano Deore XT
Brakes: Magura Raceline D
Contact: (800)BIKE-USA; www.cannondale.com

120), so steering accuracy is excellent.

While Cannondale seems to have the externals down pat, the prototype fork we rode doesn't use '98 internals, and the air-spring unit wasn't as active as the Marzocchi on the Kickapu, and transmitted only a small amount of positive feedback to the rider. Production forks will use an entirely new system (see this issue's '98 "Fork Preview"), which should improve performance.

The Freeride *will* use the same shock found on our test bike, and it's a good thing. The Fox shock's damping rates are spot on and the rebound adjuster has a huge range of control, so it's easy to dial in the ride. The smooth travel and lack of harsh bottoming allows me to ride the bike like a DH rig, hitting small and big bumps as hard as I can without feeling out of control.

It's difficult to argue with the Freeride's component spec, but production models will likely differ, so I won't blather on. Still, every time I ride with a set of Magura hydraulics, I'm so impressed with



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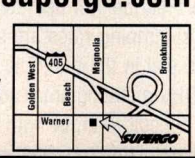

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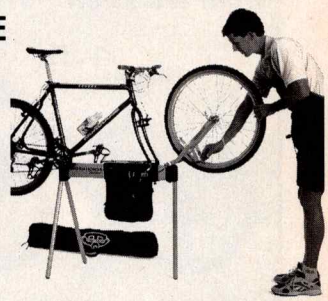

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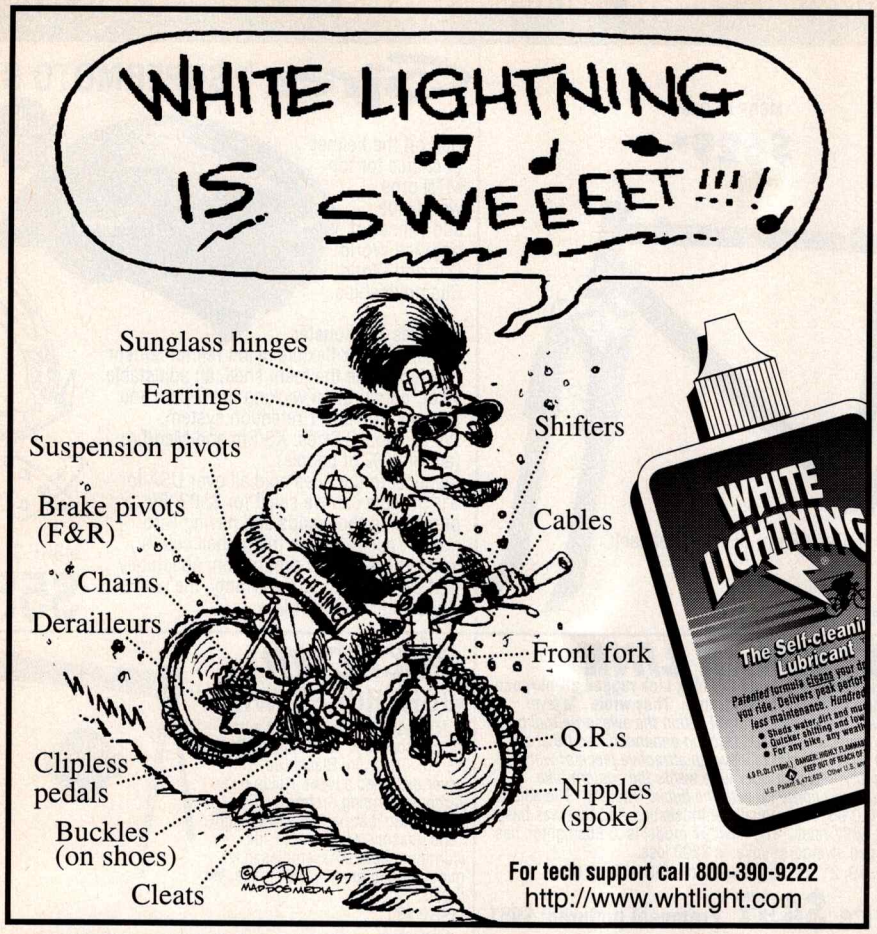

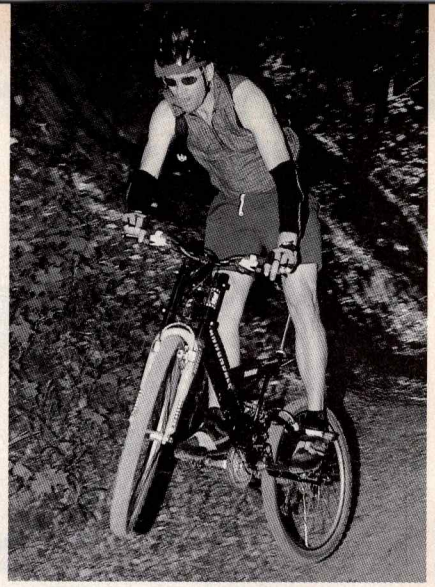

TOM WEBB

Smith praised the Cannondale for its rigidity and loved the rear suspension.

the power and feel that I can't help but gush a little. They're great, and when you're trying to haul a big bike like the 'Dale to a stop, it's best to have stoppers like these.

With an improved fork, I think I would make the Cannondale my first choice. It's super rigid and I feel comfortable riding it as fast as I possibly can—which is a good thing, because it's heavy and the suspension bobs during both seated and out-of-the-saddle riding, so climbing isn't terribly fun. And besides the Titus, it's the only bike I would race downhill. If I paid the big bucks they're asking for, I would demand such versatility.

—Joel Smith

If I were rating the C'dale for rigidity, it would get a 10. The new dual-crown Moto fork, when mated to the stiff aluminum frame, makes the Super V Freeride incredibly accurate in both cornering traits and high-speed stability. Again, much of the credit goes to the Moto silverware, which is super stiff and fairly compliant—even if it did have old internals in its prototype externals. HeadShok claims that the production units will be far better. That makes me shiver.

The rear suspension is excellent—bottom line. The Fox coil shock has internal valving that allows for a supple, yet nonbottoming ride, and it boasts a huge adjustment range. This means it's dialable for a large selection of rider sizes and skills.

This particular bike came with Maguras, and folks, it don't get a whole lot better than that. The ergonomics of the handlebar, stem, saddle and levers are comfy, though I prefer a taller bar when piloting a machine that is, for all intents and purposes, a downhill bike with a triple chainring. While the Super V Freeride climbs like a Buick Roadmaster, it makes me feel like Myles Rockwell on descents; in the big scheme of things, that's all that matters to an old fart who pukes on the ride up but lives for the down.

—Tom Webb

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When you're a Clydesdale racer, people typically make getting out of your way a top priority.

PHOTOS: JOEL SMITH

We've Seen the Future of Mountain Biking, and It Weighs 250 Pounds

Clydesdales: A New Breed of Mountain Biker

BY JOEL SMITH

Hey, hey, hey—here I come. Outta my way!" These words streamed out almost as a single undulating sound, the way a Gattling gun does when it's emitting short bursts of destruction. *Ratt-a-tatt tatt-tatt*, and the noise wilted off. I might not have heard it at all, but the sheer volume at which it was said ensured it wouldn't be missed. In its wake passed a petite version of Herman Munster, moving like a wildfire over dry grass.

No one in the stream of riders further down the Iron Mike descent at the Camp Pendleton cross-country race in Southern California moved off the trail even a millimeter. They simply continued concentrating on a deep, wheel-catching rut on the left and cautiously continued down the mountain. I can imagine that if any had an inkling as to what was bearing down on them, each would have launched off a cliff to avoid the doom that rumbled their way.

"On your right! Your right! No, right, jerkface, your right!!!"

By then, Darrell Hulin was literally on top of three riders, gyrating his big frame laterally to avoid hitting the slower bikers. He moved right almost delicately, and glided effortlessly through the heap.

I saw him later at the finish, and with the competition behind him and a first-place metal dangling beneath his chin, his demeanor had changed dramatically. No longer was he a 250-pound raving maniac on two wheels—he was now 250 pounds of raving joviality, working his way through the pits and scaring people like a Mack truck does when it passes ever-so-close on the freeway.

Ordinarily, an athlete of Hulin's proportions would be anything but unusual. In a sport which is ruled by thin-boned pipsqueaks, though, whose main life goal is breaking the 3-percent body-fat ratio, a person Hulin's size is about as common as a pumpkin patch in Death Valley. But as the sport of mountain biking is evolving, more people are realizing that it doesn't require 300-mile training weeks and an innate ability to overcome pain to race mountain bikes. And promoters, ever alert to a burgeoning revenue source, are capitalizing on it by expanding their formats. Just because you're a working-class hero or an enemy to buffet tables everywhere, doesn't mean you're excluded from the fun.

The common acronym for the 200-pound-and-above class is Clydesdale, aptly named after the mammoth draft horses that are most visibly exploited by the ultimate of gut builders, Budweiser beer. But at any given race, it may be listed under a variety of equally descriptive epithets; at the event I spectated, the class was called Sumo, and based on the build of one duo, the only thing keeping bellies from banging was a lack of cloth thongs and hair grease. Of course, there's also a variation on the same theme for women: Suma. Unremarkably, there's seldom a gamut of females willing to defer themselves to this category.

Contrary to the name, Clydesdale races typically don't receive huge turnouts; if there are 10 entrants at a single event, an organizer could bill it as the world championships and no one would say a word to dispute it. The scarcity of riders doesn't mean they don't receive more than a smattering of attention. In fact, a stream of skinnier racers could be passing at a rate that's just slightly lower than the rotational speed of the earth, and not one person in a crowd will make a peep. When a Clydesdale plods his way down the trail, you'd think he was handing out $100 bills; everybody's yelling and screaming, providing enough moral support to float a blimp.

As I found out, mountain biking is typically not a Clydesdale's first brush with athletics. Most are former football or baseball players whose knees have suffered from years of abuse—accelerated by their added girth—and under doctor's order, cycling is a last-ditch effort at outdoor recreation and fitness. As with most heavyweight riders, Jim Oliva's (profiled on the next page) biggest regret is waiting until *after* he's ruined his body to enter the sport.

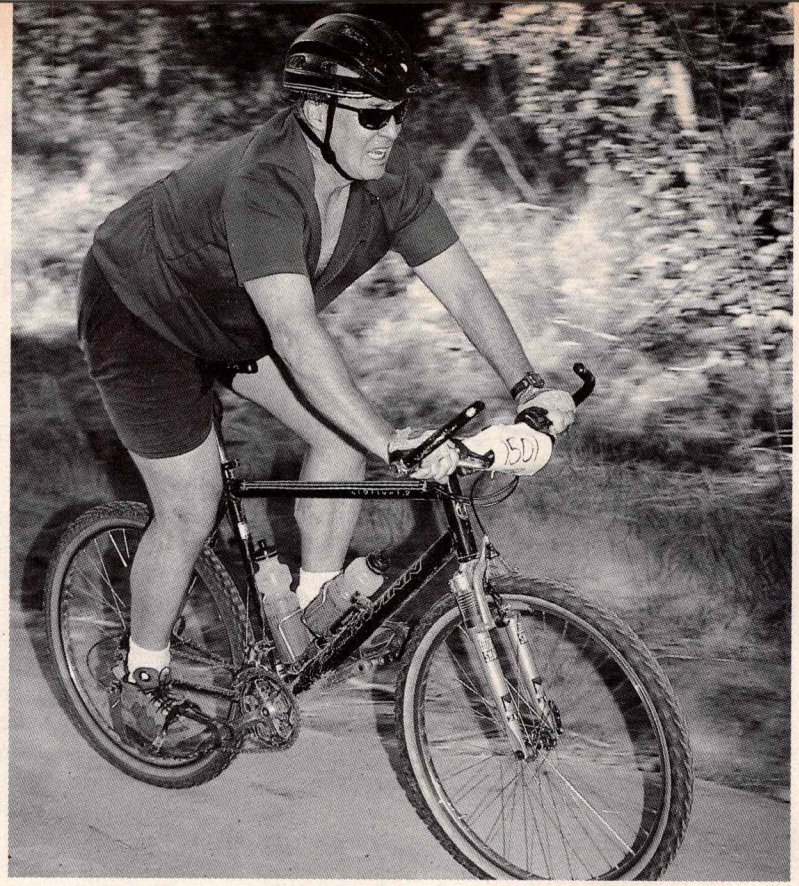
Research tends to focus on high-caliber cyclists and weight, so there's relatively little information on the endomorph body type and athletics. The most conclusive evidence suggests that big boys and girls are best suited for channel surfing or at best, swimming (buoyancy's a blessing, they say). I must

Who says Clydesdales don't sprint? Darrell Hulin not only manages to get out of the saddle and hammer, but he beats a fair amount of thin-waisted racers while he's at it.

agree that it doesn't take a doctoral degree—only an experience seeing a heavyset guy panting up a hill—to conclude that gravity's a serious adversary when you're pushing 250.

But that's not to say a pound or two extra will hurt your performance. In fact, in the last few years, and most notably with women, it's been found that some extra chub can help riders in ultra-endurance events; as the hours drag on, the body will have more and better energy stores to work off. Will you see Hulin or Oliva topping the ranks at the multistage Tour VTT or the Race Across America? Well, I'm putting my money on the waifish Bart Brentjens every time, but you never know.

Regardless, the fact that mountain biking allows such diversity is at least as nice as seeing racing grow as a sport. And while it's true that many of these same riders have been tearing through the hills for years, the added exposure shows other like-sized racers that the only thing stopping them from competition is themselves. And beyond that, it exhibits the ingrained willpower and human spirit that drives people to go beyond their capabilities. As Oliva says, "Just because you're 250 pounds doesn't mean you're not competitive. In fact, I think it's probably worse for us, because we want to prove it to ourselves and the next guy. We just have to put much more effort into making it happen." **MB**



The Clydesdale class doesn't differentiate by age or level, only by weight. That's why 52-year-old John Salzmann (pictured) competed against youngsters like 39-year-old Jim Oliva.

NEW KORE
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New Forged Single Bolt Head

The Elite Post 2 uses the same single bolt design and 1/2" offset geometry as the original, patented Kore Elite post. The Elite Post 2 has more range of seat level adjustment and head offset than the "Syncros" seat post. The Kore Elite Post 2 is the lightest, simplest, easiest to install, easiest to adjust and most reliable design available.

Forging A Head

The Elite Post 2 now features a "Forged" head that increases durability and reliability. Forging is the ultimate way to manufacture a seat post head. The Forged Head has a hand brushed finished for better durability and looks great after years of use.

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The Elite Post 2 is the only seat post available with anodized graphics. All other seatposts use stickers or ink printing, which doesn't last. The Elite Post 2 will always allow you to see the minimum insert line, and still look great on your bike after years of riding abuse.

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The Kore Elite Post 2 uses a specially built custom 6AL-4V Cold headed Titanium bolt. Cold heading is similar to forging, which improves the grain structure of the metal to increase durability. This bolt is incredibly strong, light and reliable.

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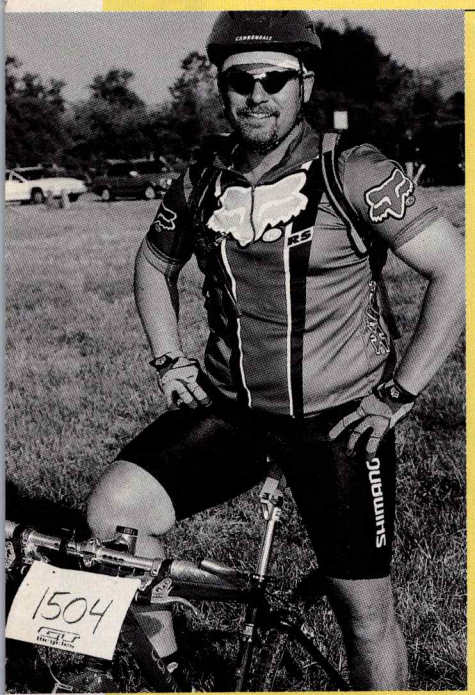
Clydesdale Rider Profile

It's easy to pick out a cyclist. Check for shaved legs, take a hard look for bulging quads or search for the requisite helmet-strap tan lines streaking down his or her face. If any of the above is evident, you can pretty much be assured that the person rides bikes. But not all cyclists fit these tight guidelines. In fact, as far as Clydesdales go, unless you witness one of them actually riding a bike, you'd likely guess the most action they see is opening and closing the fridge door. Not so. As you'll find out by reading this interview with Clydesdale ace Jim Oliva, you don't have to look like John Tomac to want to ride like him.



Jim Oliva

Age: 39
Weight: 235 pounds
Bike: 1996 Cannondale F600

When did you start racing? I just started in March of this year, when I raced out near Las Vegas. There wasn't a Clydesdale class, so I had to race with the Beginners, but I was pretty happy because I was only down 10 minutes on the winner.

Why racing? I race for the experience of it, the thrill of going out and pushing myself to my limit, to the extreme. You can go out and ride, but it's just not the same as when 10 other guys are next to you trying to get there first.

How long have you been mountain biking? Well, I've been riding off and on since the late '80s, but I only started getting serious about it a year ago. Now I ride four or five times a week.

What does mountain biking offer that other sports don't? Until I got into mountain biking, I had only played team sports, football and baseball mostly. But these sports don't give you a good indication of where you are as an individual; you're always relying on a handful of other guys to do well.

Does your weight affect your riding? Oh yeah, definitely on climbs. I'm at a total disadvantage when the hills come because I have to carry all my extra body weight up the climbs. Of course, I also have more momentum on downhills, but it can also get you in trouble if you start riding too fast.

Are there any advantages to being heavy? I get to ride the Clydesdale class, but that's political too, because the winning times are faster than most Beginner times. I think they (the race promoters) need to monitor the races better and move people up and out of the class. Let's face it, it's a weight-disadvantaged class, and if your weight gets to a point where it's no longer a disadvantage, you should join a regular class. But overall, the Clydesdale thing is good because it exposes people to racing who wouldn't normally be attracted to it.

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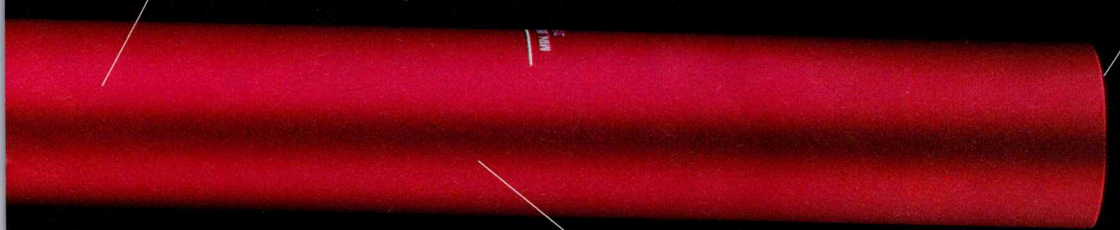

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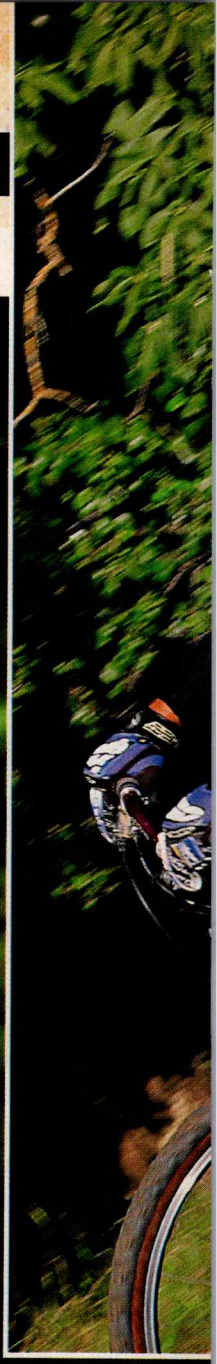

RockShox Judy XL

PHOTOS: TOM WEBB

Answer-Manitou SX Ti TPC

SUSPENSION FORK PREVIEW

It seems as though the bicycle industry is emulating the automobile industry, at least as far as product introductions go. Car companies launch next year's models at least 6 months before father time ambles his way out the door, and now, so do bike companies. And because the biggies like Trek and Specialized are pushing for earlier releases, suspension manufacturers are forced to finish new forks months before even the bikes are complete. One benefit of this is that our readers get a sneak peek at the newest suspension designs. So, before you dash out and buy '97 models, check out what next year holds in store. →

Marzocchi Bomber Z.2 Atom-Bomb

ANSWER MANITOU SX Ti TPC

Though you can't tell by looking at the new Manitou fork, it has been thoroughly revamped for '98. Internally, the $550 SX Ti's left leg houses a new Twin Piston Chamber, a long, oil-filled cartridge that handles both compression and rebound and has separate adjusters for each. It's a unique approach to bicycle suspension, but the technology originated with off-road motorcycles. The goal is to provide increased adjustability, reliability and ease of tuning.

To keep weight low, there's no spring in the damper leg, but the right leg houses a single titanium coil and a short MCU spring. That's a serious departure from previous Manitou designs, which used the traditional dual-coil springs and a cartridge (without separate damping adjustment). Manitou will use a press-fit crown with its '98 forks with the goal of improved front-end rigidity.

Answer went to great lengths to decrease stiction with its fork line, incorporating new bushings and an improved finishing process on the inner legs. Utilizing a special hard-anodize-and-polish process plus a Teflon Nor-Glide bushing, the friction coefficient has been lowered by 50 percent.

TRAIL TEST

We had the opportunity to meet with Answer's Jose Gonzales to test the new fork, and found that the action has improved dramatically over last year's version. It's much smoother and moves easily through its travel, but more importantly, the huge range of adjustment allows accurate tuning for varying terrain.

Once we had the fork set up to our liking—using the stock spring rate with a softer elastomer—we felt it had one major advantage compared to other models: resistance to dive during braking. An active suspension fork typically moves through a majority of its travel when the brakes are applied, but the TPC has enough initial compression damping to keep it from settling unnecessarily. Not only did this improve stability and turning accuracy, but the fork still had full use of its travel when you hit a bump during braking.

A fork that works well in said conditions tends to be harsh over larger bumps, but the Manitou's multiple-stage damping changes oil flow, allowing it to handle a variety of terrain with ease. Under low-speed compression—as with braking—oil flows through ports, but as compression forces are increased, not all of the oil can flow through the port holes, so it starts to blow over the shims, creating a smooth transition between compression forces.

With a highly adjustable fork like the TPC, there's always a threat of improper setup and poor performance. Accordingly, Answer will offer an extensive manual and conduct seminars at the races to help people learn about its forks.

Our initial testing proved that Answer has made huge strides in improving the range of adjustment, and in the fork's ability to chew up nasty terrain and spit out a controlled ride. It's going to be a top contender in our upcoming fork shootout.

The TPC offers more adjustability than any other fork we've tried, which allows you to easily tune it for optimum performance in a variety of terrain. We tested it on smooth trails and rocks and ruts, and found the fork worked exceptionally well.

The Answer fork is a radical departure from previous units because it has an oil cartridge that runs the length of the left leg and a single-coil spring in the right. The TPC also has new bushings and finishing process on the inner legs, and as a result, stiction was all but nonexistent.

PHOTOS: TOM WEBB

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Mountain Biker

sneak peek at '98 forks

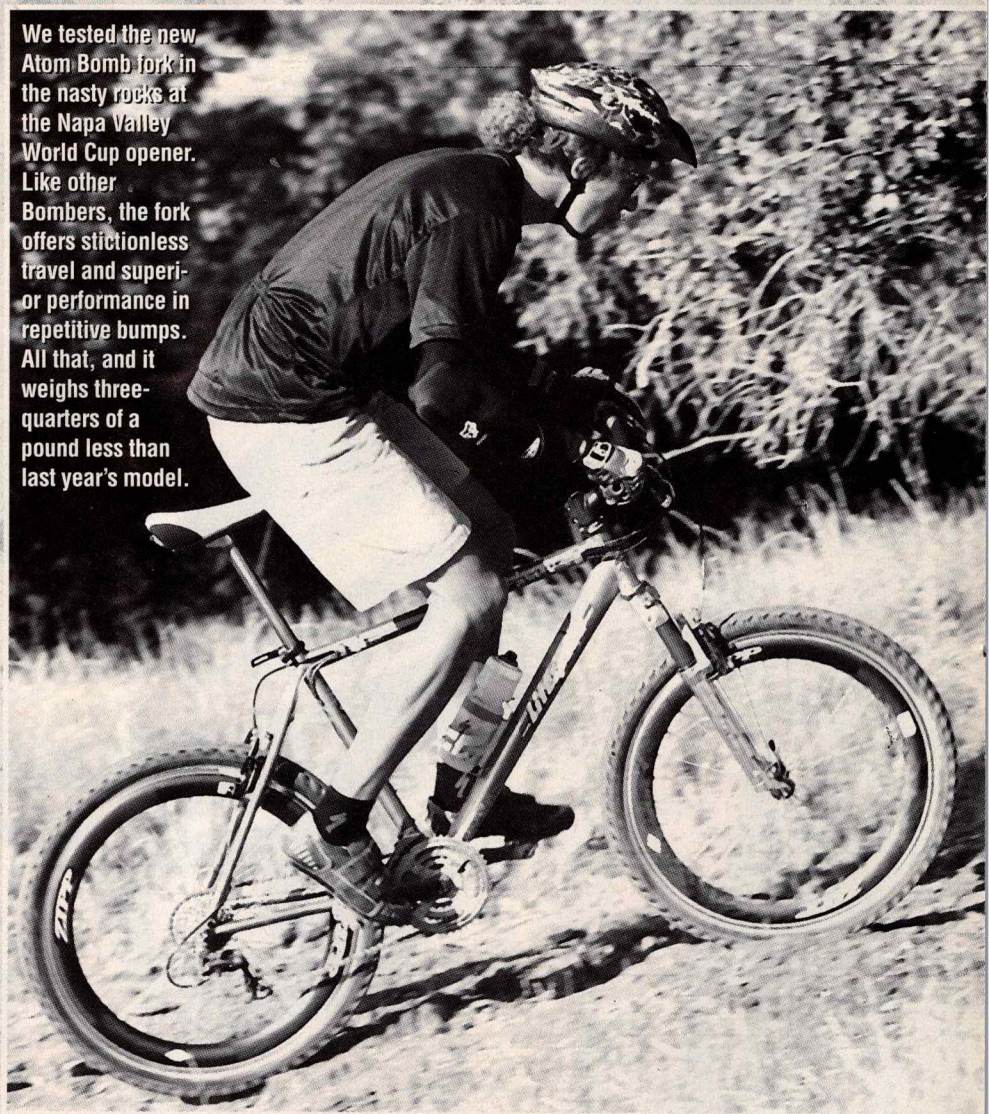
MARZOCCHI BOMBER Z.2 ATOM BOMB

We're no strangers to Marzocchi Bomber forks, but it did feel strange to ride with the new 3 1/2-pound Atom Bomb, mainly because it's three-quarters of a pound lighter than its predecessor. Marzocchi was able to drop weight by using a revolutionary metal called Bomber Aerospace Material (BAM) in the lower legs. It is said to increase overall strength, rigidity and durability compared to last year's aluminum model. The material is also lighter than magnesium, which until now has be the magic metal of the fork industry. In addition, Marzocchi trimmed down the brake brace and added an Easton aluminum steerer tube.

All Bomber forks benefit from a new negative-travel design, which was developed to allow for an increase in travel without upsetting your bike's handling. With the new design, the fork's neutral position is 10 millimeters into its travel, so there's no need to set sag. As a result, under normal riding conditions, the head angle will be exactly the same as how the bike was designed. Because the added negative travel takes away from compression travel, Marzocchi increased overall travel from 60 to 75 millimeters, which gives it a full 65 millimeters of downward travel and 10 millimeters of negative travel.

Internally, the Atom Bomb is the same as previous Bombers, and that's why we love its performance. The fork offers the fastest action around, easily soaking up repetitive braking bumps and the occasional large jolt, and of course, with less weight, it's nicer to pound up hills. We still think Marzocchi could add low-speed compression damping to decrease brake dive, but its straight-line bump-eating abilities have yet to be matched, and the negative-travel system only makes it more cush.

All of the technology that went into making the Atom Bomb is forcing an increase in price; the Atom Bomb will run $599 and the BAM, which will use the aluminum sliders instead of the BAM sliders, will cost $469.



We tested the new Atom Bomb fork in the nasty rocks at the Napa Valley World Cup opener. Like other Bombers, the fork offers stictionless travel and superior performance in repetitive bumps. All that, and it weighs three-quarters of a pound less than last year's model.

Marzocchi is using a revolutionary material on the Atom Bomb, which means less weight and increased rigidity. The new 'Zoke also has travel bumped up to 75 millimeters with a new negative-travel system that lessens the affect of sag on bike geometry.

PHOTOS: TOM WEBB

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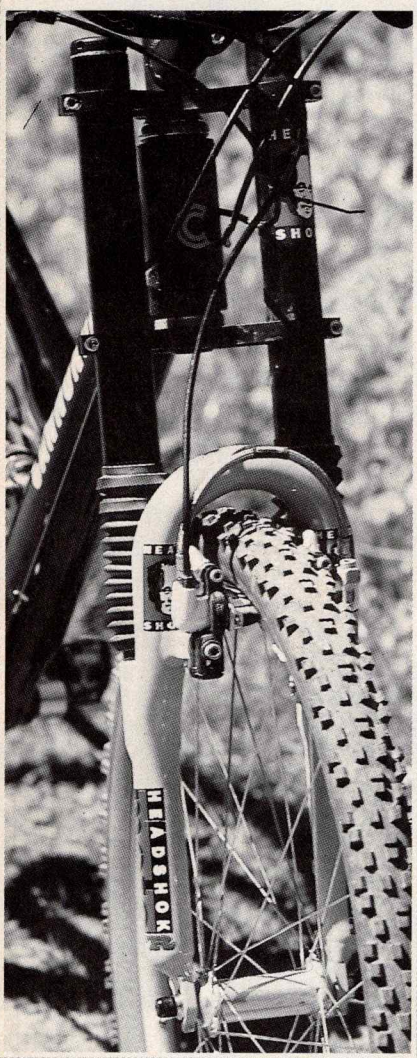
HeadShok has been experimenting with different fork designs and travel lengths for more than a year, but the company has finally settled on a model line. It includes the Fatty 70, the Moto 100 FR and the pro-only Moto 150. We gave you the low-down on the 150 in the last issue "Cannondale Super V DH Fulcrum" and the 70 in May ("Super V 2000"), but the FR is the last fork to be finalized. HeadShok is marketing the 100-millimeter-travel FR (for freeride) fork to the developing freeride market, and Cannondale will spec the fork on at least two bikes next year. Both inside and out, the fork has been heavily modified compared to HeadShok's previous long-travel units. The inverted design has been dropped for a conventional style with a one-piece brake bridge and lower-leg assembly; the FR uses needle-bearings instead of bushings; the oil cartridge has been moved from the left leg to the right (the emphasis is on rebound control versus low-speed compression) and the fork uses a single-coil spring and elastomer instead of air. The FR will use a 1 1/8-inch steerer tube, and a standard hub–quick release combo, putting the weight somewhere in the neighborhood of 5 pounds.

We were only able to ride a prototype version of the FR fork, and it only managed 85 millimeters of travel and didn't utilize the coil-spring or new damping cartridge. But still, it was obvious that the unit offered more rigidity than previous Moto forks. Cannondale's Mario Galasso attributes the improvement mainly to the new lowers, but says the needle-bearing internals also help because they reduce binding as the fork compresses. At press time, HeadShok hadn't settled on a price for the fork, but Galasso expects it to fall in the range of the $1199 RockShox DHO.

HeadShok Moto 100 FR



Though our test unit was still in the prototype stages, the Moto 100 FR is still the most rigid fork we've tested.

RockShox is typically hush-hush about its new forks, as was the case with the new Judy XL. The 80-millimeter-travel fork (upgradeable to 100 millimeters) is being built for freeride and cross-country-oriented full-suspension bikes. RockShox worked hard to make the XL as light as possible, designing a new dual-crown, rather than using the same unit as the DHO. The fork is said to be a half-pound lighter than the 4 pound 12 ounce DHO.

RockShox is also forging ahead with the internals; the XL uses a new Type-III spring system, which RockShox' Dirk Belling says, "is a symbiosis between the damper cartridge and the springs." The cartridge will control both rebound and compression damping, but the two will be adjusted via a single external knob located beneath the left lower leg. RockShox hasn't set a price yet. **MB**

RockShox Judy XL

The Judy XL is being built for the growing freeride market, and hopes are to have a production unit out before the year's end. The fork will use RockShox' new Type-III spring system and is said to weigh well under 5 pounds.

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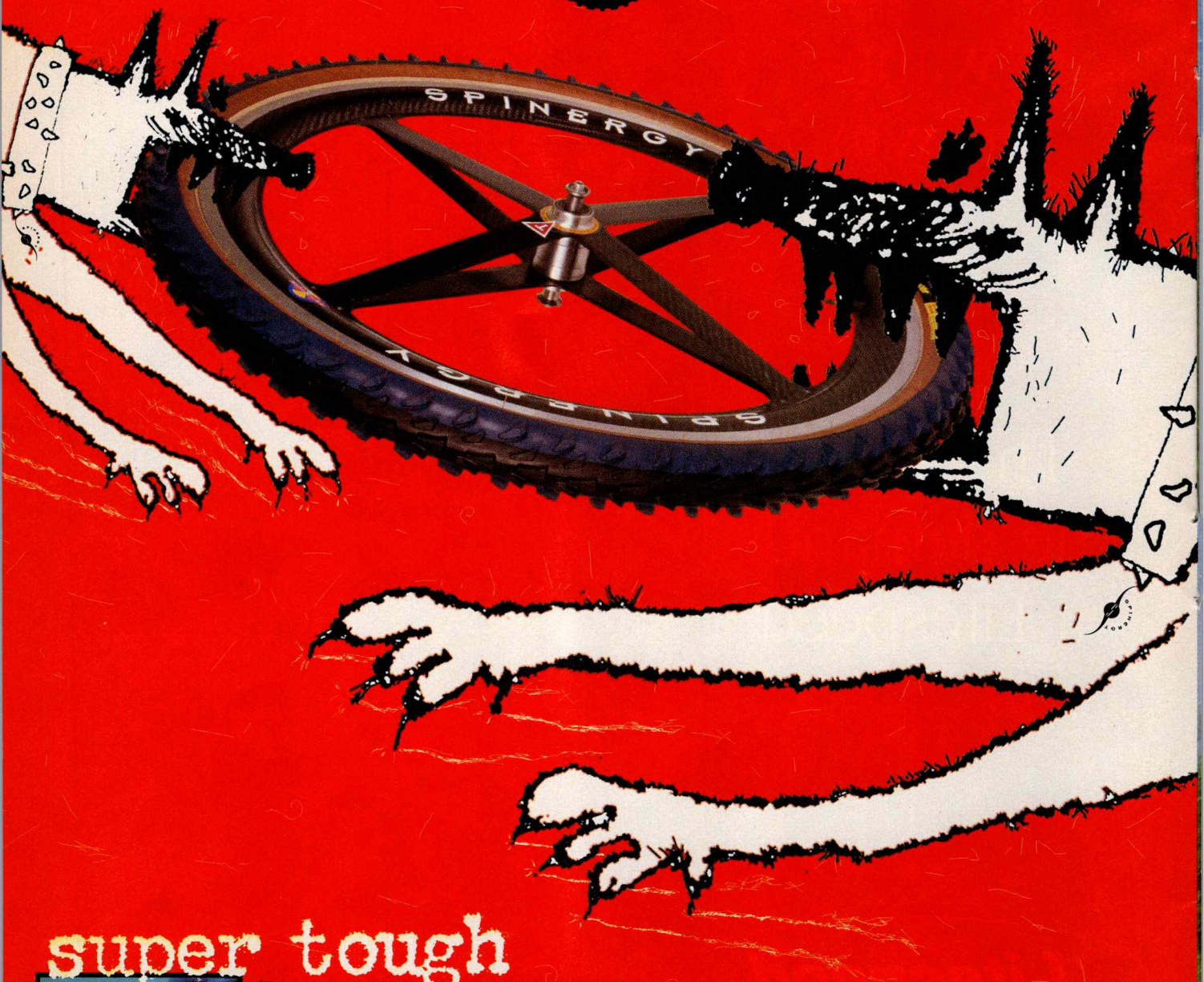

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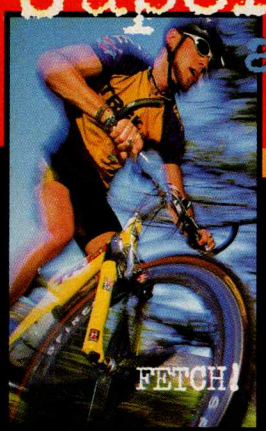

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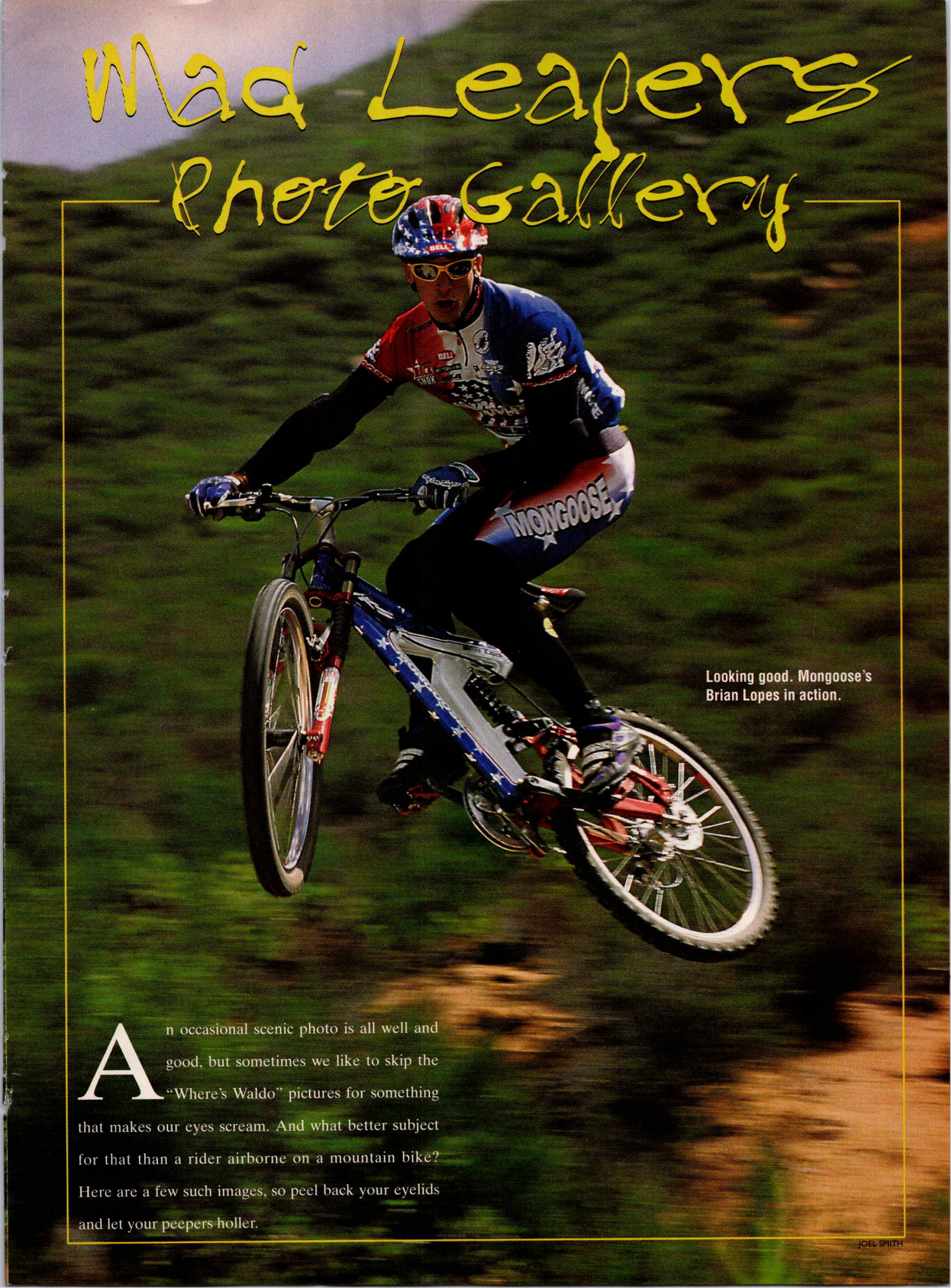
Mad Leapers Photo Gallery



Looking good. Mongoose's Brian Lopes in action.

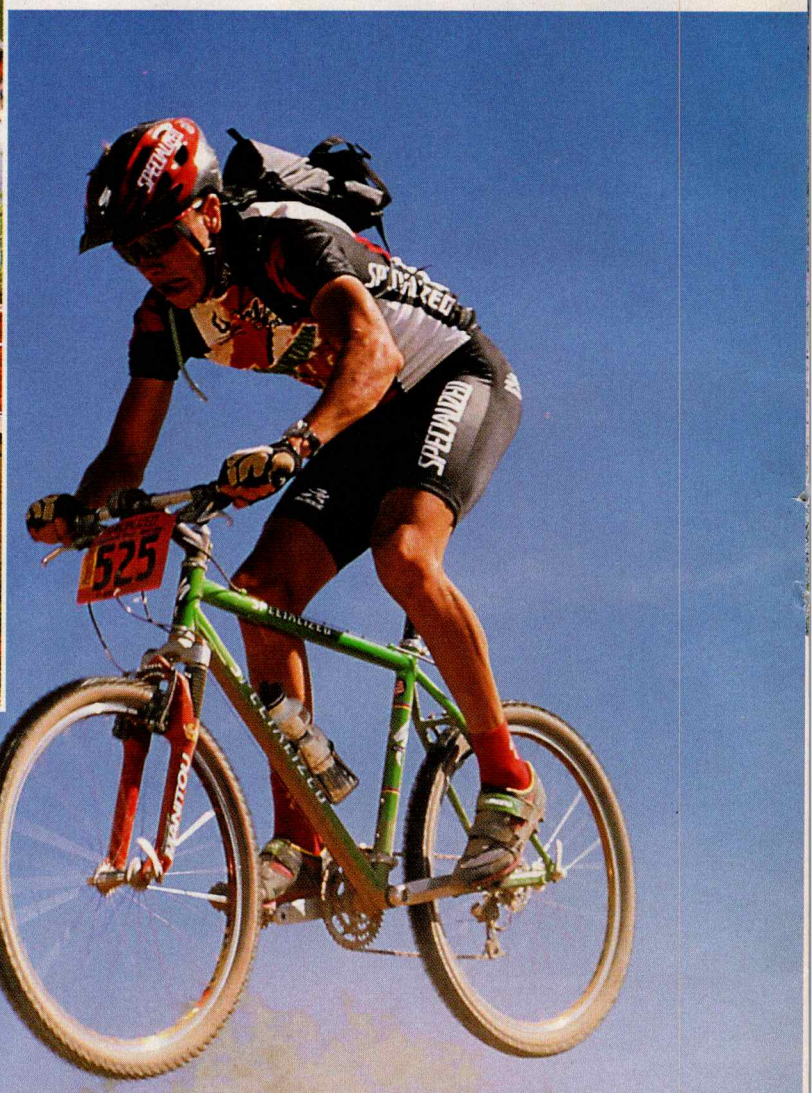
An occasional scenic photo is all well and good, but sometimes we like to skip the "Where's Waldo" pictures for something that makes our eyes scream. And what better subject for that than a rider airborne on a mountain bike? Here are a few such images, so peel back your eyelids and let your peepers holler.

JOEL SMITH

Mad Leapers

photo gallery

CHRIS JONNUTT

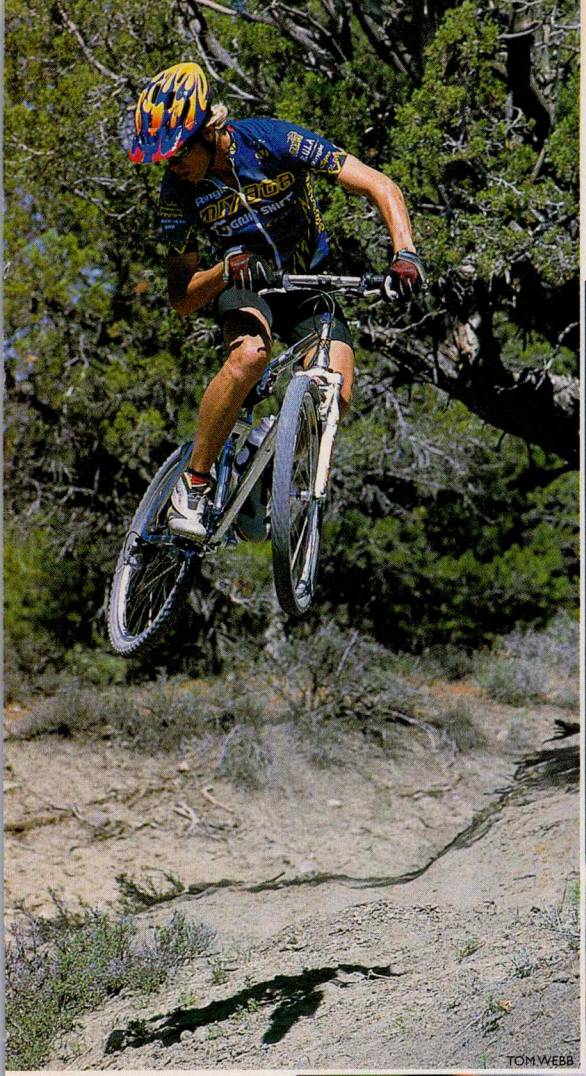


Who says you have to find the perfect jump to catch big air? Surely not these riders who managed to let their wheels soar midrace. In the above image, Pro-Flex's Nick Feid launches the Disco Fly-over bridge during the Napa Valley XC World Cup opener. At right, citizen racer Chad Hammer takes a lofty respite from the toils of the Cactus Cup racecourse.

JOE LINDSEY

Mad Leapers

photo gallery

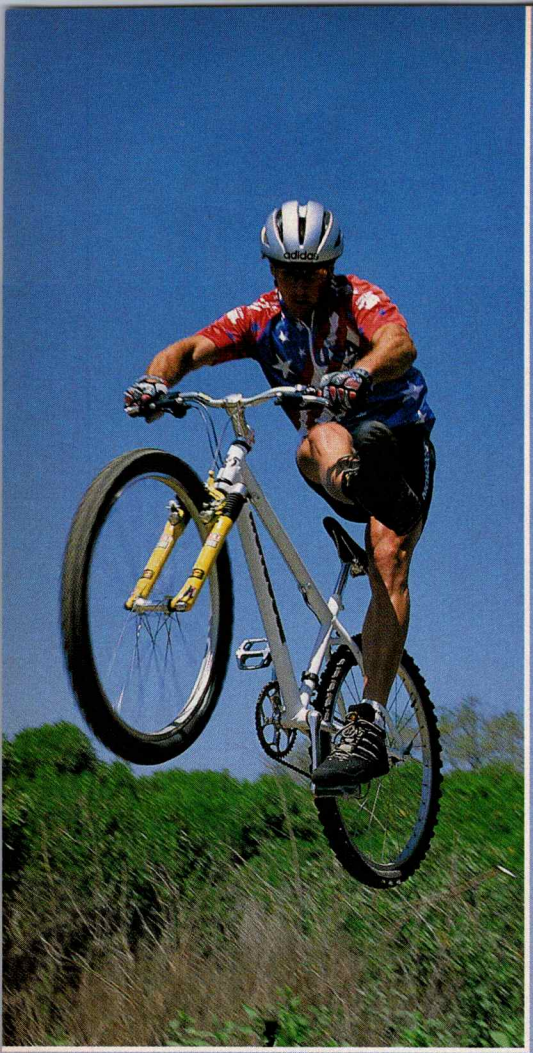


TOM WEBB

▲ Greg Herbold may be from the old school, but that doesn't mean he isn't in with the new style. Fairly often, in fact, H.B. likes to bust one out and show the youngsters just what it means to catch air.

One of the most brutal courses on last year's DH circuit was this one in Les Gets, France. Midway through a long, high-speed straight, the course crossed an ill-placed dirt road which sent some of the best riders cartwheeling rudely down the mountain. With a little body English and a lot of guts, Volvo-Cannondale's Kenichi Nabeshima fared better.

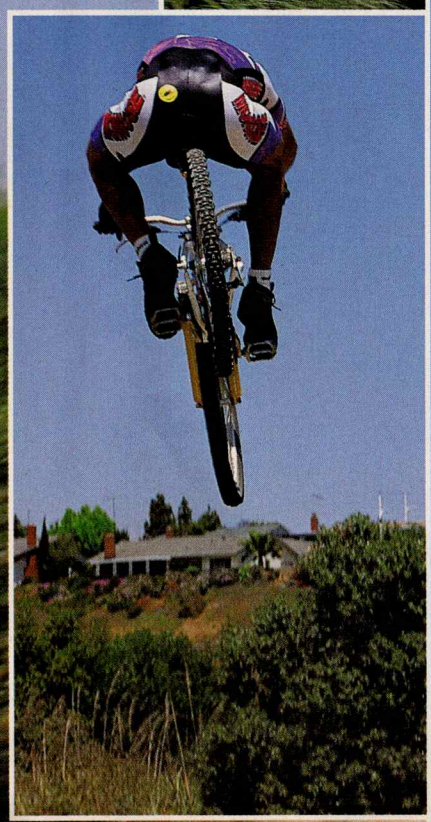
CHRIS JONNUM

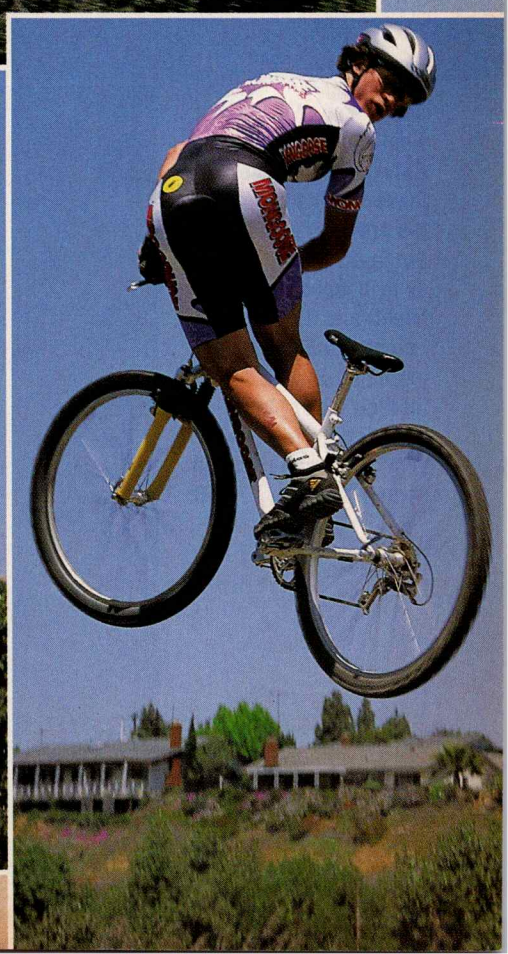


Brian Lopes has a way of making even the most complicated aerobatics look somehow mundane. But to be honest, these photos barely give you a glimpse of just how sick he is. When you're standing around with a camera stuffed in your face, ogling as he soars to mind-bending heights, you feel so utterly inadequate that it makes you want to give up bicycling altogether and take up something like competition hair combing.

Mad Leapers

photo gallery





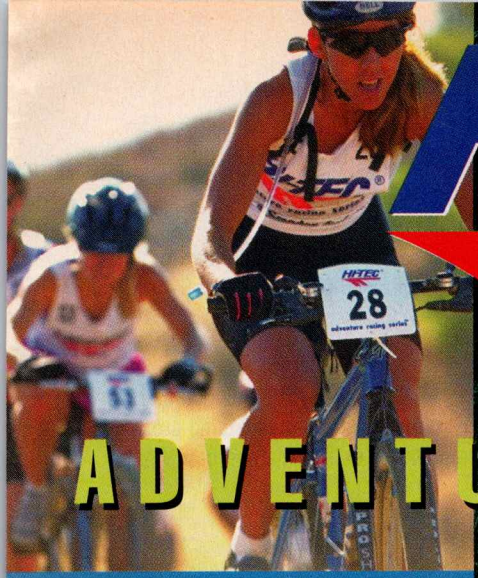
PHOTOS: JOEL SMITH

Mad photo gallery Leapers

TOM WEBB

Okay, okay. We know what you're thinking: Only a pro could get loose like the people in the previous photos. But that's just not true, as evidenced by Ira Vick (right) and Gerald Leighton (above), two normal guys who don't let their lack of fancy gear or notoriety prevent them from catching some major air. MB

JOEL SMITH



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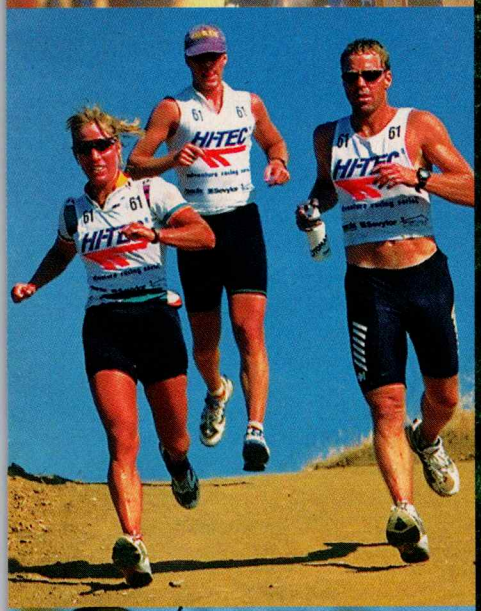

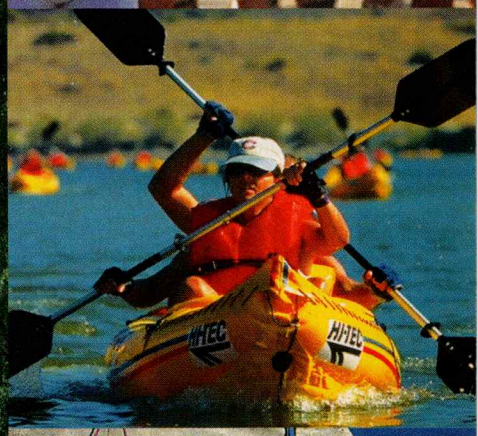

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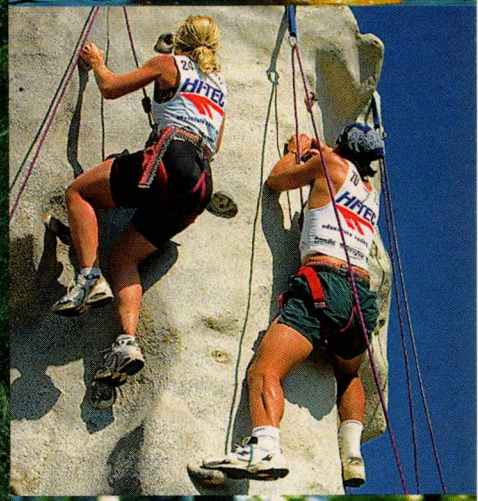

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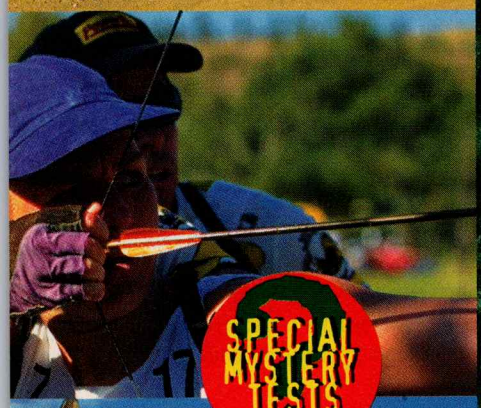

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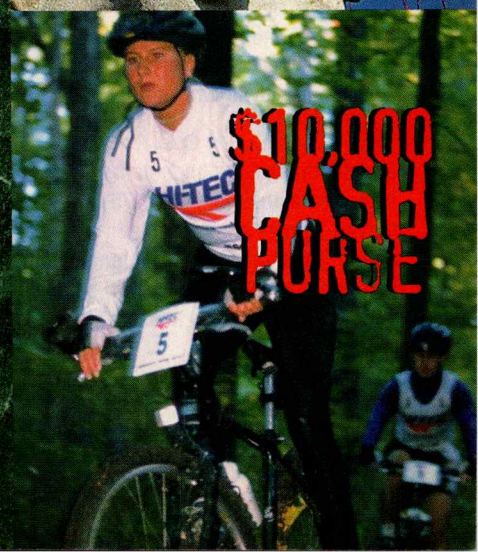

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Climb Better Now

25 Tips for Quicker Ascents

Regardless of what caliber rider you are, climbing a hill on a mountain bike is a painful task. Just check the faces of the world's best climbers: The agony is as evident as a stripe on a zebra's hide. But just because ascending is difficult doesn't mean that there aren't ways to make it easier. Read through our tips for quicker ascending and before you know it, you may be at the top of the climbing game.

1. Ride

The bottom line is that regardless of what you do, you're not going to become a better climber unless you get out and ride at least a few times a week. Not only do you become more fit when you ride consistently, but your mind and body get accustomed to the pain, which is step one to improving your uphill skills.

2. Go Clipless

If you're still using toeclips and straps, it's time to upgrade now. Prices for clipless pedals are dropping each year, which is great for your bank account, but more importantly, they improve pedaling efficiency by allowing you to pedal smoother, circular strokes.

3. Try Stiff-Soled Shoes

If you plan on upgrading to clipless pedals, it's best to buy shoes with a stiff midsole to go along with them. They're harder to walk in, but the increased rigidity transfers more power to the pedals.

4. Pedal Circles

It's easy to get into the habit of pushing down only, but to make the most of each pedal stroke, you need to stroke circles with each leg. Not only does this allow you to gain more power, but it varies muscle use, lessening overall fatigue and avoiding overworking only a small group of muscles (typically the quads). We recommend practicing by pedaling with one foot clipped in while the other leg hangs free.

5. Drink Water

Water is the elixir of life; sip it when you're thirsty, when you're not, and in between—especially on climbs.

6. Eat Right

We can't stress enough how important it is to eat properly before a ride. Your body needs to replace burned energy midride and unless it has something to feed off of, it uses the muscles as a source of energy. Bad news. Properly nourished, though (and, of course, with an adequate fitness level), the body can be a well-tuned machine, providing you with the oomph to get up those hills.

7. Spin

Spinning may look stupid, but we guarantee that adding it to your training regimen will improve your climbing prowess. It's also great because it's easy to schedule in a Spin class or two when work's not allowing any fat-tire fun.

8. Fit Your Cranks

Despite the fact that mountain bikers come in all sizes, 95% of all bikes come equipped with 175-millimeter cranks. Like a bike, though, cranks are available in a variety of sizes (Shimano, for example, sells seven different lengths) and a reputable bike shop can recommend the length that will be best for you. Keep in mind that a shorter rider will want to use a shorter crank and vice-versa for a tall rider.

9. Vary Tire Pressure

We always add more air pressure to our tires for cross-country races because increasing pressure decreases the contact area of the tire to the ground, resulting in diminished rolling resistance. On the other hand, if the terrain is more technical, decreasing pressure may provide better traction, which may in the end help you get up the hill faster.

10. Eliminate Chain Friction

Friction can be a major problem with bicycles, and this is especially true with the chain. By keeping the chain clean and lubing it regularly, you will lessen drag and increase climbing speed.

11. Get Light Wheels

When associate editor Chris Jonnum rode a superlight Dave's Sweet Dreams wheelset a few months back, he proclaimed, "They feel like they climb by themselves." We know high-end wheelsets are expensive, but work into it slowly; buy a set of lightweight tires and tubes first and see if you notice the difference. If it works, try lightweight rims next, and so on. After all, rolling weight has at least twice the affect on a bicycle as static weight.

12. True Wheels

Not only is chain friction a problem, but if your wheels are out of whack and hitting the brake pads, the rim friction will also make you lag on ascents. Take your hoops into a good shop and have them trued properly; the benefit will not only be faster climbing speed, but also increased durability.

13. Carbo Load

During the week leading up to a race or particularly long ride, you should pack on the carbos. *Mountain Biker* nutritionist Virginia DeMoss recommends getting somewhere between 60 to 70 percent of your daily calorie totals from carbohydrates, starting a week prior to the event.

14. Don't Sway

How can swaying your upper body slow you down when it's your lower body doing all the work? Cycling is about efficiency, and when you're moving your shoulders with each pedal stroke, you're wasting energy. Try to keep as still as possible on the bike, focusing your energy on your legs and keeping your upper body loose and relaxed.

15. Pump Yourself Up

Just because you aren't using your arm and chest muscles as much as those in your legs doesn't mean you should avoid training your upper body. Having a strong upper section means that you can avoid fatigue during long ascents and also grip the bar-ends more firmly when you get out of the saddle.

16. Breathe

Silly sounding, isn't it: After all, we all breathe when we ride, right? Well, not really. Most riders have a tendency to hold their breath when they work hard on a climb—it's poor technique, but also hard to avoid. Try to focus on your breathing, working each gasp of air into your lungs to maximize efficiency.

JOEL SMITH

17. Vary Between Standing and Sitting

If you're a race fan, you may have had the opportunity to watch pros climb. And if you've paid close attention, you noticed that these riders will vary between standing and sitting on sustained climbs. The reasoning is this: Not only does changing your climbing position work multiple muscle groups, it allows you to simultaneously stretch your muscles and vary your breathing patterns.

18. Tune Your Bike

Like your body, your machine needs to be properly functioning if you want to reach the pinnacle of your climbing potential.

19. Get the Mental Edge

It's no secret that confidence inspires performance, but most mountain bikers spend more time attempting to improve fitness than gaining the mental edge. Riders at the upper echelons of the sport know that the proper combination of the two will provide the best base for any type of athletic achievement.

20. Measure Seat Height

Running your seat too low is a common mistake and it wreaks havoc on your pedaling efficiency, but it can be easily cured. Start by raising the seat to a height that when you sit, your shoe's heel will only touch your bottom pedal if your leg is completely straightened. From there, make minor adjustments up or down to suit your personal tastes. One note here: Some people tend to go the opposite direction with seat height—raising it too high—but this can both cause knee problems and decrease power (because you're reaching with each stroke).

21. Downshift

Even the best riders occasionally get caught in the wrong gear, but you should do your best to choose the proper gear for the terrain you're ascending. For example, if you look ahead on the trail and see that the climb is super steep, downshift into a comfortable gear, and then upshift slowly if the gear you've chosen is too easy to push.

22. Ride With Better Riders

Riding with better riders is advice that cyclists at any level should take. Not only does the competition factor mean that you will pedal harder—which will improve your fitness over time—but the experience will allow you to set and monitor long-range goals.

23. Stretch

When your riding time is limited, it may be difficult to take the time out to stretch, but it must be done if you want to climb faster more comfortably. We usually ride for about 15 minutes at a moderate to high pace and then take a few minutes to catch our breath and loosen those tight muscles.

24. Do Leg Presses

Even though it's good to get out and ride, it's surprising what a little work in the gym can do for you. Try doing some leg presses or other muscle workout to increase your overall leg strength, and the results will be felt the next time you're pushing a big gear uphill.

25. Massage

After you've done your climbing, don't forget to massage your legs. This helps your muscles recoup and prepare for another day in the saddle.

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PRODUCT COMPARISON SPECIAL

What exactly is it about the act of buying a mountain bike that causes its new owner to suddenly crave aftermarket components? No sooner do we roll a new ride off the showroom floor, than visions of upgrades begin dancing in our heads, and soon we're hanging around bike shops like pigeons at an underpass. It just doesn't seem normal; after all, you won't catch a jewelry buyer shopping for a lighter-weight clasp, or a procurer of clothes hunting for better-performing coat buttons.

Such materialism is a bizarre phenomenon, but while it can easily get out of hand, there's nothing necessarily wrong with the desire to better your bike. On the contrary, improvements are generally good, whether they be to one's riding skills, quality of life, fitness or yes, even bicycle. But change doesn't in itself make for a better mousetrap (or bicycle), so to assure that your modifications reap the greatest possible improvement, we've performed head-to-head comparisons on a number of popular upgrades. →

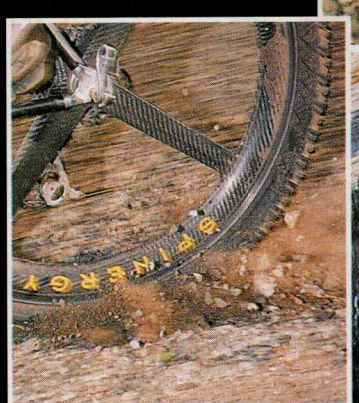
DIRECT-PULL BRAKES 70

DIRECT-PULL LEVERS 72

TIRES 75

SEATPOSTS 68

SHOES 82



COMPOSITE WHEELS 77

LIGHTWEIGHT WHEELS 80

PHOTOS: CHRIS JONNUM

Mountain Biker tested

Suspension seatposts

1. Answer Body Shock

Price: $150 (plus $10 for shim)
Weight: 507 grams
Contact: (805)257-4411
Design: Used by John Tomac, the Body Shock utilizes a standard telescoping design and houses a stack of four short MCU springs in the post. Preload is adjusted via a flathead screwdriver and a threaded plug in the bottom of the post. What sets it apart from other posts is hidden beneath that black plastic box: the square sliding junction between the upper and lower posts. This shape minimizes the annoying play that often develops with telescoping posts, and Answer even provides an adjuster to eliminate any slop that may arise. You could conceivably use the bolt to lock out the suspension, but this isn't recommended; a big load might cause the post to slip down and then lock, leaving you with too low a saddle height. Binding and stiction are other problem areas with telescoping posts (since downward forces are seldom in the same plane as the forward-canted travel), but Answer's square design allows the use of a stiction-negating needle bearing.
Function: The Body Shock's performance mirrors its clean, sano appearance: There is absolutely no slop between the upper and lower sections, and we liked being able to fine-tune the ride with varying elastomers (we ended up going with two yellow and two brown). It has just enough supple travel to take the edge off and is less stiction-plagued than other telescoping posts, and the seat clamp is super solid (though saddle angle adjustment can be difficult). Complaints? The bottom part of the black plastic boot is chafed by the upper section's downward movement, causing minor aesthetic damage.

2. Giani Suspensions

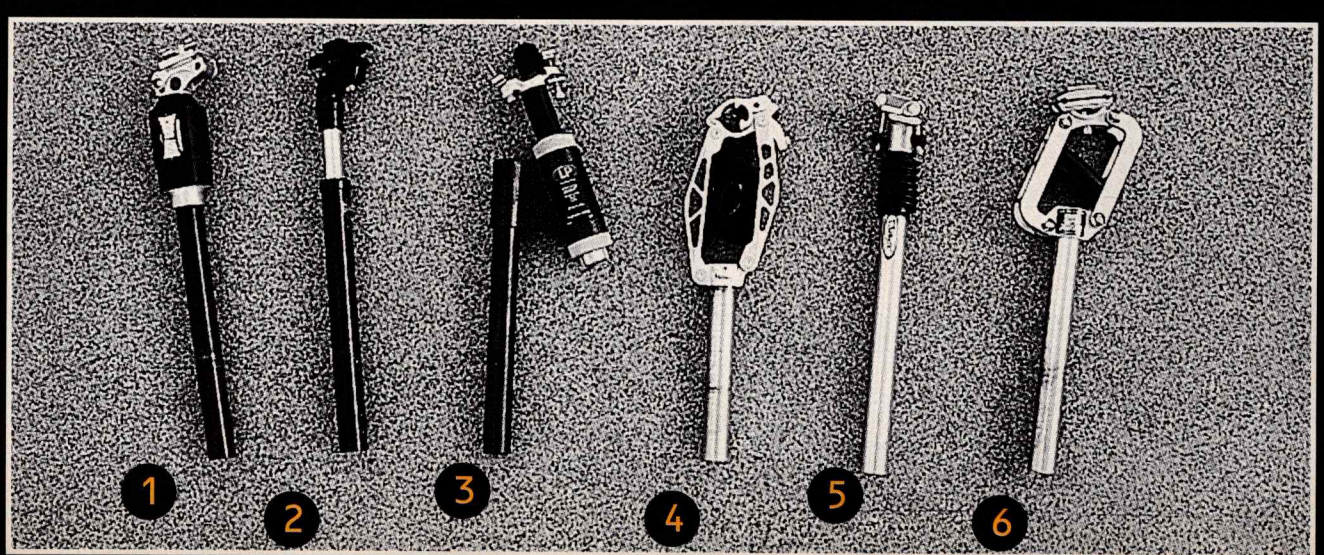
Price: $74.95
Weight: 430 grams (no shim)
Contact: (800)437-4074; www.giani.com
Design: Using a standard telescopic design, the Giani is perhaps the simplest model of the bunch. A single, long elastomer resides in the post, and is replaceable or preload-adjustable with a 6-millimeter hex key; just turn the plug that threads into the post's bottom.
Function: Despite a price that is less than half of most models in this test, the Giani is extremely light and offers respectable performance. The post is plagued by an abnormal amount of stiction, though, as rearward forces cause the forward-canted post to bind. We were content with just the single, red elastomer, but still would have preferred the ability to mix and match MCUs à la Answer. The single-bolt seat clamp works well and is easily adjustable (though arguably not as secure as a two-bolt style), and there's no side-to-side slop in the post.

3. LP Composites SSP

Price: $249
Weight: 547 grams (shims available)
Contact: (509)493-4447
Design: Unique to the LP post is its offset compression tower. This allows the saddle to compress and rebound vertically (in line with most impacts), which minimizes stiction and retains a set saddle-to-handlebar distance. Most of the unit is carbon fiber, and an external knob allows an extremely large range of preload adjustment. It's the only one of these posts that is coil sprung, and it puts out 1.75 inches of travel.
Function: This is one of our favorite suspension seatposts, primarily because of the smooth travel afforded by its offset design. We also like the easy and effective preload adjustment and the feel of the coil spring. It can bind under a forward-and-down-moving butt when a rider is sitting on either the nose or tail of the saddle, but it's not glaringly obvious. Four corresponding grooves and ridges prevent play between the upper and lower posts, though we did lube the interface frequently to eliminate stiction. The sliding carbon post scratches easily and the seat-clamp bolts are difficult to access with a long hex wrench.

4. Moxey Aligned Reaction Technology

Price: $199
Weight: 611 grams (no shim)
Contact: (888)364-1660
Design: Makers of parallelogram-design posts like the Moxey aren't content with simply taking the edge off bumps; they want real suspension (Moxey claims 4 inches from the ART—more than some full-suspension bikes!). It uses an elastomer (three durometers are available; medium is stock) that is held between two beautifully CNC-machined aluminum links. Preload is adjusted by squeezing the links closer together with a hex bolt.
Function: Is the Moxey as good as full suspension? It's possible to sit



through some terrain where you'd normally stand, but when it gets really rough and you have to leave the saddle, the benefits are lost. Of course, such is the case with the other posts. We felt less overall travel, just enough to take the edge off, would work better. While 611 grams is quite heavy for a seatpost, it's quite light for suspension. The long travel and rearward-collapsing design make for a constantly changing saddle-to-handlebar distance (noticeable in the arms) and a constantly changing seat angle, but maintain a fairly consistent saddle-to-pedal relationship.

We preferred the firmer elastomer ($19.95), and had no trouble switching, but the cut-to-length plastic shim isn't as sano as the custom-made metal shims of the other posts. On the other hand, the seat clamp is first rate.

5. Tamer Post Centrik-SL

Price: $139.95
Weight: 525 grams
Contact: (402)475-3430
Design: Preventing side-to-side seat movement was a top priority for the makers of the Tamer telescopic post, which uses a hexagon-shaped male-female interface to prevent slop. There's also a knurled lockring that can be used to tighten down to the bushings when they begin to wear, and a rubber boot to keep out dust and grit. The spring consists of four MCUs, which come in three durometers for dialing in the just-under 1.5 inches of travel. Fine-tuning is accomplished with a hex-key-actuated preload plug in the bottom of the post. The upper section is chrome-moly, the lower aluminum.
Function: The Tamer is a basic, simple post that does exactly what it's supposed to with a minimum of hassle. Play is nonexistent and action is surprisingly smooth. The steel upper minimizes flex, though it does bring weight up a bit. Also, some riders will appreciate the compact clamp (a secure, no-hassle, two-bolt design) and upper-lower junction, which allow the post to slide way down in the seat tube.

6. RJ Concepts Thudbuster Quadra-Pivot

Price: $189
Weight: 473 grams (no shim)
Contact: (800)256-6240; www.thudbuster.com
Design: Three is the magic number for this parallelogram post: Three durometers of elastomer (changeable without tools), three possible preload settings (adjustable without tools) and 3 inches of travel. Circlips on the pivots make rebuilding simple, though we can't think of why you'd do it.
Function: Again, having the saddle moving in the same arc as bump forces makes this post feel similar to suspension, and increases comfort considerably when sitting through the rough. But even with the firm elastomer, excessive bobbing made it difficult to tell what the rear wheel was doing, and we were sometimes rebounded out of the saddle after hitting a big bump. The elastomers are easily switched but seem to stretch out quickly, and the linkage soon develops play and an annoying rattle. Also, sitting on the saddle nose (which normally improves traction for climbs) only results in the entire saddle moving back. The Thudbuster is quite light for a parallelogram-design post.

Mountain Biker's Choice

We haven't found suspension seatposts to directly affect performance, but all these units increase comfort noticeably, and this can improve your riding over the long haul. For this reason, we now run suspension posts on almost all our hardtails (even though it complicates clamping them in a bikestand). Among these posts, the LP just edges out the Answer for top honors.

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direct-pull brakes

1. Avid Tri-Align III

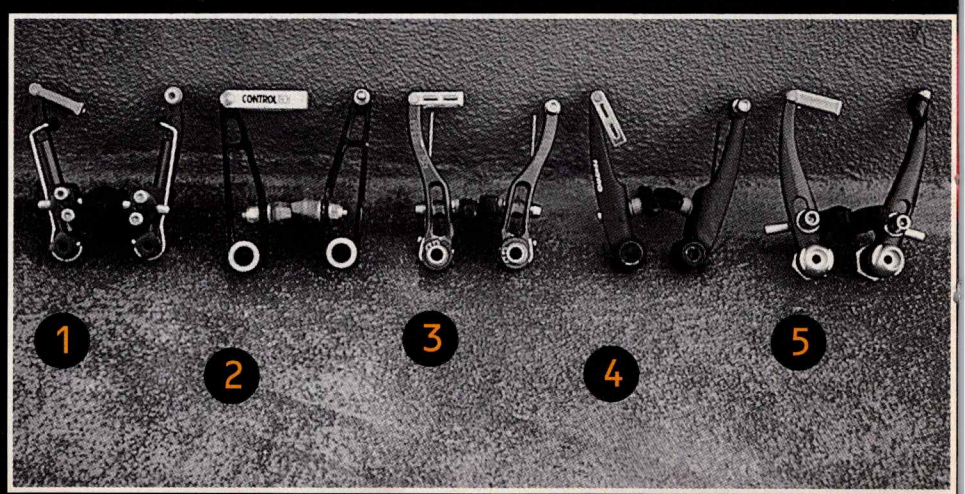
Price: $109.95 per brake
Weight: 159 grams per brake
Contact: (303)762-9353
Design: Like Shimano, the Avid brake uses linear springs, but the Kool-Stop pads are of the nonthreaded variety (Shimano pads have threaded posts). The hollow brake arms are CNC-machined aluminum and don't utilize any sort of linkage mechanism (like Shimano's parallel push). Detailwise, the noodle tip is stainless steel (most are aluminum, which galls easier), and all the hardware has 4-millimeter hex heads (for one-wrench maintenance).
Function: Because they have separate adjustments for pad height and toe-in and not Shimano's all-at-once spacer setup, the Avids require quite a bit more monking on initial setup, but they also allow for more precise adjustments (and are still easier than cantilevers to set up). We like the linear springs, which keep their position and require less tension than a coil, but prefer Shimano's simple screw-type spring-tension adjustment to Avid's pivot-mounted adjusters. The IIIs are nice and light, and offer good, predictable power on the trail.

2. Control Tech Side Pull

Price: $70 per brake
Weight: 160 grams per brake
Contact: (206)395-0800
Design: The Control Tech is carved almost entirely from aluminum, and has linear springs with screw-type adjusters. The brake arms can fit on either side, and the threaded, gray Kool-Stop pads can be adjusted via concave-convex washers (to allow toe-in). Interestingly enough, the Side Pull doesn't use a cable-guide noodle; the cable housing simply runs down to the CNCed cable carrier.
Function: Unique-looking among the brakes tested, the Control Tech's big, open design is fairly lightweight. The soft brake pads wear fast and are a bit on the touchy side when applied, and since the concave-convex pad-adjusting washers are hokey compared to the Shimanos, initial setup is a pain. And with no noodle, the brakes' feel isn't completely solid (since there's some flex in the cable and housing). This will be especially noticeable to riders who loop their front brake to be actuated by the right lever (like us), until they take advantage of Control Tech's interchangeable arms (running the front cable holder on the left arm).

3. Proshift Super-Vee

Price: $60 per brake
Weight: 175 grams per brake
Contact: (619)448-4508; www.proshift.com
Design: You should be familiar with the terminology by now, so we'll just run down the features: CNCed aluminum, linkage-less arms, linear springs with screw-type adjusters, threaded brake posts and pads with metal backing trays to prevent flex.
Function: This is a stiff brake, and the fact that it weighs slightly more than some of the flexier models is probably no coincidence. How good is the feel? Good enough to mimic a hydraulic rim brake. Initial setup could be easier, but subsequent adjustments were unnecessary and would have been easy if they were. To top it all off, the pads last.



4. Tektro 820AG

Price: $30 per brake
Weight: 166 grams per brake
Contact: (310)374-4433
Design: This is the most faithful copy of a Shimano Simple V-Brake we've come across yet—and that's a good thing. Like that stellar stopper, the 820AG has linear springs with screw-type tension adjusters, forged aluminum arms without linkage and threaded Kool-Stop brake pads with concave-convex spacers.
Function: Just a darn good brake—especially when you consider the price. Not as fancy as some, but it's got all the features we like and none that we don't. It's easy to install, easy to set up and has good power and modulation. The cool upper spring-retention pins are even better than Shimano's!

5. Vanguard Lizard 690AV

Price: NA
Weight: 229 grams per brake
Contact: NA
Design: There's nothing fancy about the Lizard, but it's of a higher quality and has greater attention to detail than we'd expect for the price; it even has a cool little catch for keeping the cable-end in place—something we'd like to see on Shimano binders. The nonmachined, 6061-T6 aluminum arms use internal coils (no linear springs), and the pads have nonthreaded posts.
Function: We'd prefer threaded brake-pad posts (or at least the clamp-style that offer independent adjustment), although the Lizard's single-bolt post clamps were surprisingly simple to adjust. While coil springs aren't our favorite, the Vanguard's weren't as feisty as some others. And while most direct-pulls flex the frame's seatstays considerably, the Lizard's arms flex first. Accordingly, it has less power than the others (the hard-compound pads are partly to blame), though there's still enough for one-finger stopping. Weight is right in there, and the price is even better.

Mountain Biker's Choice **Though Avid gets top honors for quality and Tektro wins the bargain-hunter's category, Proshift's combination of solid performance and a fair price give it the overall victory.**

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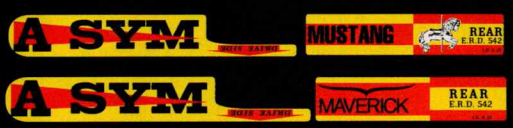

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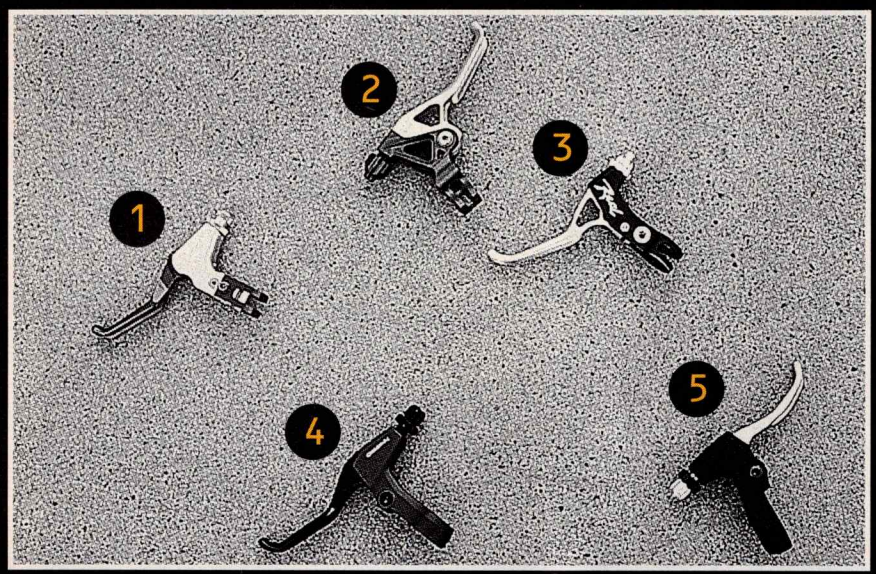

1. Avid SD Ultimate L

Price: $154.95 per pair
Weight: 140 grams per pair
Contact: (303)762-9353
Design: Avid has adorned the ultimate lever with its heralded Speed Dial function, a knurled knob which articulates the cable-barrel retainer to adjust braking power. The CNC-machined aluminum levers have dual cartridge bearings at each pivot and a screw for adjusting lever reach. The Cam-Split handlebar clamp lets you remove or install the lever without taking off the grip and shifter.
Function: Installing the Ls is a breeze because of the Cam-Split design. Avid does a good job of cutting away excess weight while retaining stiffness; the Ls' lever blades are a little more stout than Avid's cantilever Speed Dial models, and the improved fitness is noticeable. Of all the models tested, these have the least play in the pivot area. They're super adjustable, and while we never felt the need to adjust braking power on the fly (which the Speed Dial enables), we appreciated the large amount of feel the levers offered. Weight is light, but price is heavy.

2. Box Moto

Price: $189.50 (U.S. only) per pair
Weight: 194 grams per pair
Contact: (805)259-3509
Design: The most obvious feature of the CNC-machined aluminum Box levers is their thick blades—20 millimeters from top to bottom, with a very round profile. Even the cable-tension adjuster is chunky. There are two positions for the cable barrel to reside—forward for modulation, rear for max power, but there is no lever-reach adjuster.
Function: These levers are bigger and stronger by far than any others we've seen. You'd assume that they're made for those monstrous of meathook, but even our big-digited testers thought they were overkill. Said testers even managed to get their fingers caught in the large, triangular holes in the perch and lever blade. And while it's nice not having to futz with a locknut when dialing in cable tension, the adjusters are extremely difficult to turn.

3. Real X-Levers

Price: $100 per pair
Weight: 112 grams per pair
Contact: (800)REAL-785
Design: Another CNCed 6061 aluminum lever, the Reals have a handlebar clamp that is completely enclosed. The cable-tension adjuster has a locknut, and there's a small hex screw for adjusting lever reach. There are two cable-barrel retainers—one for direct-pull brakes, and one for cantilevers. We found it interesting that Real—a company known for its chainrings—uses a chainring nut and bolt for clamping the perch to the bar.
Function: The Reals are difficult to install; a tight tolerance on the handlebar clamp meant we had to lube our painted bar with oil and hammer the levers on. Once in place, they had a simple, clean finish, solid feel and minimalist appearance; these brakes are definitely light,

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but are strong enough despite this. The small, triangular hole in the lever sometimes caught our testers' fingers, though not to the degree of the Box levers.

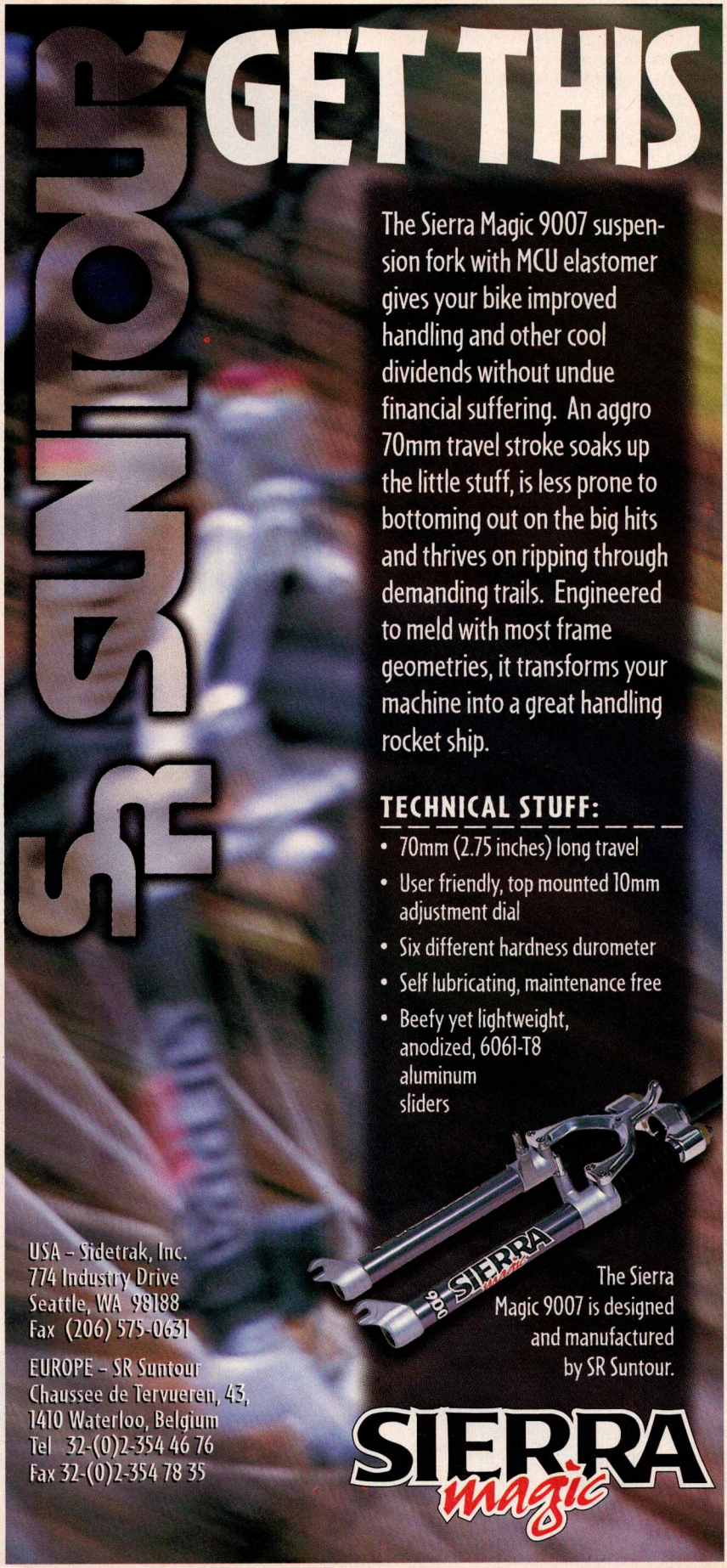
4. Tektro 342A

Price: $16 per pair
Weight: 194 grams per pair
Contact: (310)374-4433
Design: Like Vanguard (see below), Tektro's main goal with this lever is affordability. The forged-aluminum unit has adjustable lever reach and a cable-tension adjuster with a locknut. Though the cable-barrel retainer has indications for both linear-pull and cantilever settings, it can't actually be moved from the linear-pull setting. One feature of the 342As that the pricier models don't have is the lever-blade return spring.
Function: Though it's nothing fancy, the Tektro's finish is nicer than the Vanguard's. The return spring is unnecessary since this chore is easily handled by the return spring on the brake itself. Some testers even felt that it made the feel of the lever less vague, though this was negated somewhat by the flexy perch (though the blade itself was plenty stiff).

5. Vanguard Lizard

Price: NA
Weight: 200 grams per pair
Contact: NA
Design: Vanguard wasn't trying to woo the anodization-happy, CNC-crazed hipsters with this bare-bones, forged aluminum model: it was shooting for the price-conscious shopper. A cable-tension adjuster with locknut and a lever-reach adjuster are both standard, and the lever blade is easily removable, but there's only one position for the cable barrel, so braking power can't be adjusted. Like the Tektro, the lever has a return lever blade spring, but this spring is much stiffer.
Function: The Vanguard levers don't match the quality of the company's direct-pull brakes. The finish isn't as nice, and on one lever, the handlebar clamp holes were even misaligned, so we couldn't thread the bolt in. The lever-blade return spring is too stiff for our tastes, though some may like the authority with which the lever snaps back. The lever blade itself is beefy and flex-free, but we did notice a fair amount of flex from the perch itself. In all, damn good for the bread.

Mountain Biker's Choice **Judging from these models, direct-pull brake levers are one instance where you get what you pay for. Thanks to their solid feel, easy installation, huge range of adjustability, light weight and good looks, the Avid SD Ultimate Ls are indeed the ultimate.**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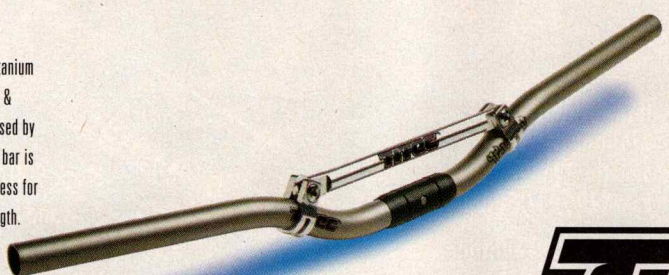

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Hutchinson Python

Price: $37
Weight: 602 grams
Contact: (303)371-1664 (Sampson Sports)
Design: French tire company Hutchinson has had much success with its downhill tires (national champs Brian Lopes and Leigh Donovan both use them), but the Python XC has seen limited distribution in the U.S. The round-profile Python has short knobs covering the top and sides, uses the same tire front and rear and is direction specific. The tire is available in a single 2.0-inch width.
Function: The Python works superbly on both hard and semi-loose terrain. It provides plenty of cornering traction, and because it's narrow (at least as much so as many 1.9s) and round, rolls as fast as many slick tires. The design also allows it to cut through muck and light mud. The downside is that it wears extremely fast; after only a few rides, the Python's knobs were rounded considerably.

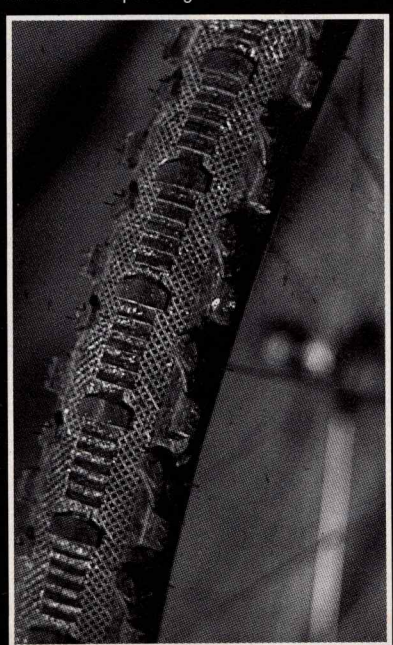
Tioga Factory XC

Price: $39.95 (Kevlar)
Weight: 623/586 grams (f/r)
Contact: (888)GO-TIOGA
Design: The Farmer Johns are gone, but Tioga has new tires to replace them: the Factory XCs. Since they're designed for cross-country use, the XCs are narrow, 1.95 inches, for lowered rolling resistance, and feature Kevlar beads for easy installation and light weight. The XCs are front, rear and direction specific. The rear has chevron-shaped scoops for improved climbing traction, and both tires have wide side knobs.

Function: The Factory XCs' compounds are hard, which limits traction somewhat, but they're durable. The tall side knobs on the front tire cause it to catch when turning, but the rear's shape allows it to dig nicely for good traction in loose dirt. A stiffer than normal casing also kept us from flatting and gave the tires a consistent feel.

IRC MythosXC Slick

Price: $35-$40
Weight: 588 grams
Contact: (510)441-0126
Design: IRC's MythosXC Slick features a side-tread pattern similar to that of the full-knobbed MythosXC. The nonspecific (front and rear) 2.1-inch size tire has a center tread line that resembles fish scales—angled cuts face the diminutive knobs in one direction. Depending on terrain or front or



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NO TOOLS LOANED
MY OTHER CAR IS A MT. BIKE
Avid RACING
SPEED KILLS BUT YOU'LL GET THERE FASTER!
MTB SHUT UP
Parts
MT. BIKE OVER THE BARS CLUB
I DON'T RIDE FAST I JUST FLY LOW
SACHS BICYCLE COMPONENTS
ARAYA
SUNTOUR
BELL HELMETS
PRO RACING
THIS IS MY LITTLE BROTHER'S BIKE....
THIS DIRT IS FOR YOU!
HAMMER TO YOU HURL
PSYCHO BITCH!!
HELMET LAWS STILL SUCK
If You Didn't Crash You Weren't Riding Fast Enough!
CRASHING SUCKS
SHOE!
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WHY RIDE WHEN YOU CAN RACE!
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DANGEROUS TOY
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rear use, you can vary the tire's rotational direction for either optimum traction or lowered rolling resistance.

Function: The IRC is not the fastest-rolling semi-slick, and it provides only decent cornering traction in intermediate terrain. The rear tire works best when it's mounted so that the knobs scoop dirt, but we didn't notice improved handling when we mounted the front the same way. The IRC excels on rock-hard ground and won't pinch-flat over an occasional rock (we also found we could run lower pressures with this tire). The Slick's bigger dimension provides additional cush over rocks, but a narrower tire would have rolled faster.

Panaracer Mach SS and Mach SK

Price: $34.95 (Kevlar), $29.95 (wire)
Weight: 545/563 grams (f/r)
Contact: (310)828-1000

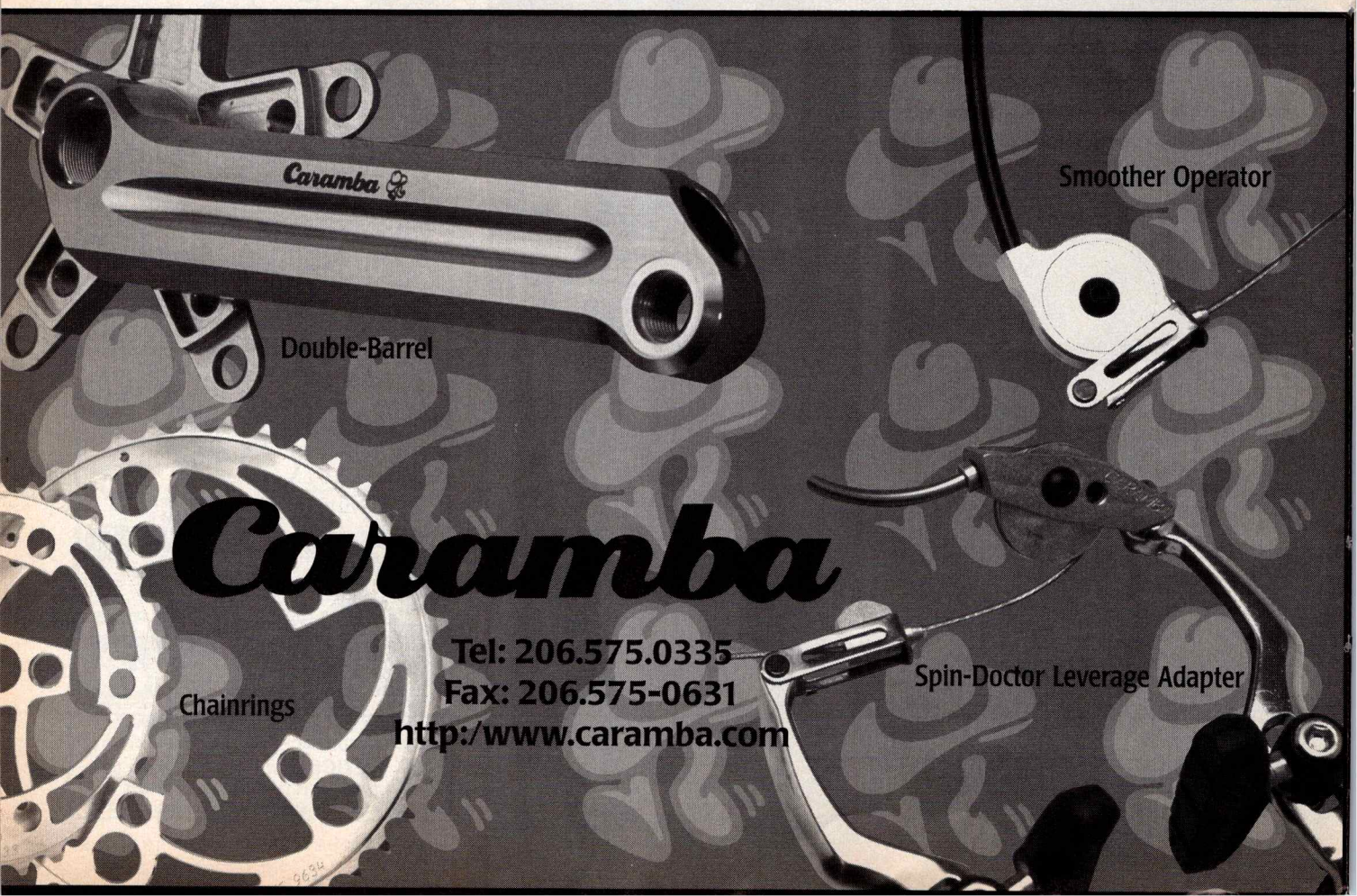
Design: Panaracer's semi-slick tires are a departure from the norm in that they are front and rear specific. The SS front is similar to other slicks in that its center portion is treadless, but the side knobs are tall for cornering. The rear SK forgoes a smooth center for a multitude of short, square knobs covering the top portion. The sides have almost identical knobs to those on the front. The Mach combination is available in 1.95-inch width only.

Function: The front tire is definitely fast-rolling on hardpack, and the side knobs provide enough bite to let you carry a line through a loose dirt corner. It's narrower than other slicks we've ridden, which may be a cause of the occasional pinch-flats we encountered, but overall it's an excellent bridge between a traditional knobby tire and a full slick, and as such, we recommend it for first-time slick-tire riders.

The rear is an odd tire; it works best on hard terrain, corners consistently and rolls with little resistance, but doesn't provide much traction up loose, steep climbs. It's as if the multitude and close proximity of the center knobs keep it from digging into the dirt; still, it provides more bite than most semi-slicks.

Mountain Biker's Choice

If the Hutchinsons didn't wear so quickly, we'd choose them front and rear. But with durability and performance in mind, the optimum combination for all-around riding would be the Panaracer up front with the Tioga out back. For XC racing, we'd have to go with the Panaracer on the front and an IRC on the rear.



composite wheels

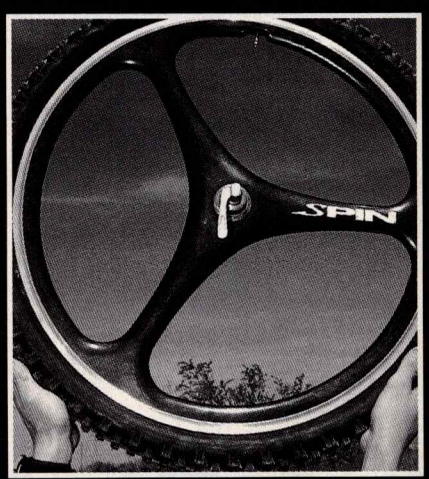
Aerospoke Composite

Price: $320 front, $405 rear
Weight: 2 lb 11 oz (1219 grams)/3 lb 1 oz (1389 grams)(f/r)
Contact:(810)685-9009; www.fedel.com/aerospoke
Design: They're not as mainstream as Spin or Spinergy, but Aerospoke has been building composite wheels longer than anyone else (since 1989). The molded, one-piece wheels have five hollow spokes each (the molding process uses a removable, reusable core), and the rim itself is an aluminum Velocity model. Interestingly, both the front and rear wheels are identical before the sealed-bearing hubs are installed. Said hubs are removable and serviceable. If you break a wheel, Aerospoke will replace it for $150.

Function: Aerospoke wheels are popular among police departments' mountain bike patrols, since they're durable and require no truing. We also appreciated these qualities, though the heavy weight makes for slow acceleration. Once you get them going, though, the Aerospokes roll quite nicely and carry momentum. There's very good lateral stiffness, but they do have a noticeable dead feel compared to a spoked wheel. As with any mag wheel, crosswinds blow the Aerospokes around quite a bit, but oddly, the problem seemed less apparent than with either of the other wheels in this comparison. We say "oddly" because logic would dictate that the increased number of spokes (five compared to four and three) would catch more wind. Bonus points for not requiring valve extenders for the inner tubes (though there's not much valve left to get a hold of); points docked for the narrow brake track (which complicates pad adjustment).

Spin ATB

Price: $499 per pair ($599 ceramic rim)
Weight: 2 lb 9 oz (1162 grams)/2 lb 15 oz (1332 grams) (f/r)
Contact: (888)YES-SPIN
Design: By using both an internal and an external mold, Spin can inject the thermoplastic-carbon mix at extremely high pressure, resulting in a compact, nearly zero-void wheel



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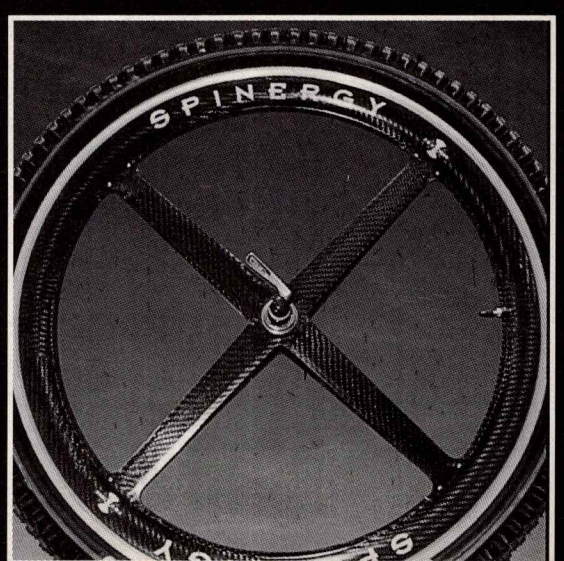
material. An alloy with a low temperature resistance makes up the internal mold, which is melted out and recycled after the wheel is built. This leaves the classic three-spoke, hollow wheel, which is bonded to an aluminum rim. We've had our Spins for quite a while, but the newer versions use thicker braking surfaces for longer life. The cartridge hubs have eight splines that interlock with the composite material to keep them from slipping. One of Spin's best features is the $45 rim replacement service (the price includes the rim, labor and return shipping), in case you should ever manage to tweak your rim.

Function: Like the Aerospokes, the Spins carry momentum well and are impervious to impacts. As mentioned, we've been riding these wheels for a *long* time, and they simply refuse to bend or break. The generous rim-replacement service is handy, but we haven't even needed to utilize that. The wheels are lighter than Aerospokes, though still more hefty than the Spinergys (the new models have lighter hubs). Side winds blow the wheels around quite a bit more than a spoked wheel, but you can use a standard inner tube with no valve extension.

Spinergy rev-X-roks X-tra Lite

Price: $995 per set
Weight: 1 lb 15 oz (879 grams)/2 lb 6 oz (1077 grams) (f/r)
Contact: (888)438-7389
Design: Spinergys are unique to composite wheels in that they're built in tension with opposing spokes, much like a conventional wheel. The only difference is that rather than a high number of wire spokes, rev-X-roks use four pairs of carbon blade spokes. The wheels also differ from the other two models in that they're made by laying carbon fiber rather than injecting a thermoplastic. With its '97 wheels, Spinergy was interested in increasing stiffness and decreasing weight, so a titanium rear axle was added and holes were drilled in the rim's non-load-bearing wall.
Function: When you look at the delicate-appearing rev-X-roks, it's hard to believe that the things can stand up to the abuse of mountain biking, but we rode ours hard and long and experienced nary a wobble. The wheels' tension build makes them feel more "alive" than the other two models, adding feel in corners and on off-cambers, and there's even a slight give that helps take the edge off bumps. This is all old news compared to a spoked wheel, but unusual for a composite model. Big, aggressive riders may feel a tad too much lateral flex, and for these folks, Spinergy includes X-beams—stiffeners that fit between the left and right spoke blades. At 190 pounds, Joel Smith opted to run the X-beams in the rear, but 170-pound Chris Jonnum did without. The wheels' most impressive feature is their feathery weight—just a few ounces more than some of the models in our lightweight wheel comparison. We were surprised to actually notice the improved aerodynamics when pedaling hard on fast fire roads, though crosswinds blow the bike around. Snivels centered on the Richy Rich price tag (more than many bikes!), the lack of clearance between the rear cassette and the spoke protector (ours dragged so bad we had to remove the protector) and the tall rim walls (they hold the tire well, but complicate tire removal). Also, the carbon cowling's deep-dish shape necessitates the use of either inner-tube valve extensions or tubes with long valves (remember this when packing a spare), and the wheels make a lot of noise when riding through rocks.

Mountain Biker's Choice **Rather than compare apples to oranges, we'll pick two winners in this case: Wealthy riders looking for a lightweight, lively, aero wheelset ought to go with the Spinergys. Frugal pilots in search of something bombproof should opt for the Spins.**



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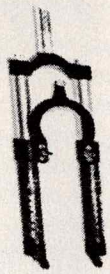

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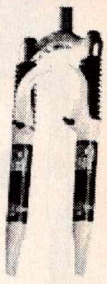

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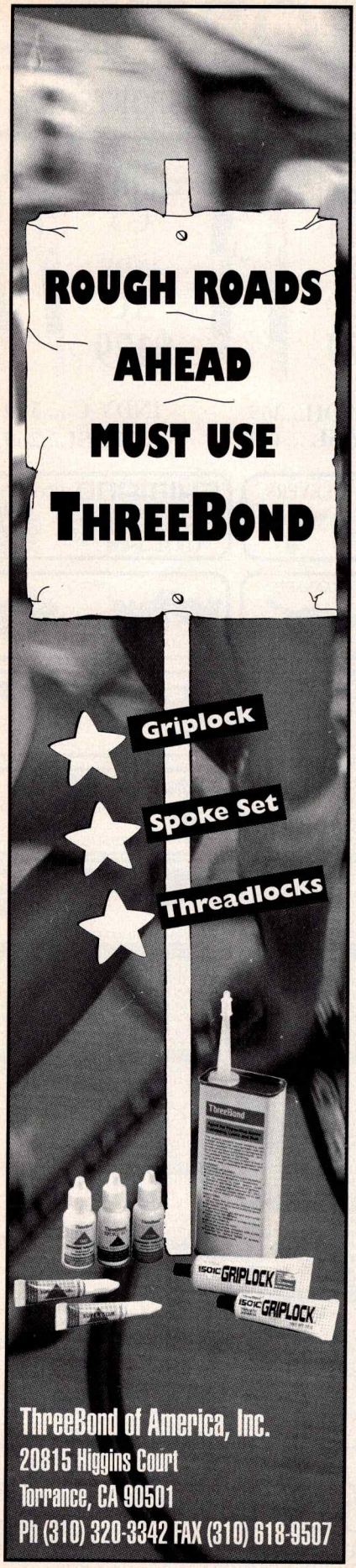
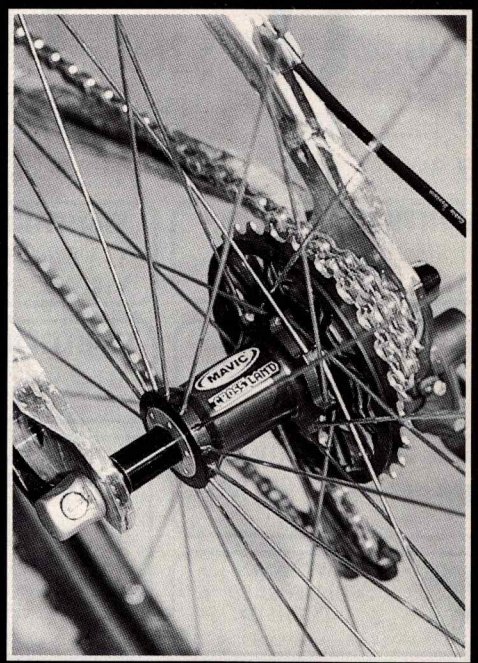


Mavic Crossland

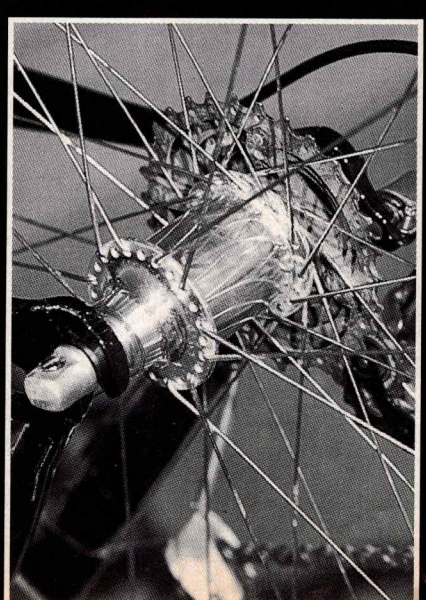
Price: $500
Weight: 720/931 grams (f/r)
Contact: (800)548-2945
Design: Crosslands are Mavic's price-sensitive wheelset, but share many qualities with the high-end Crossmax: Crosslands are radial laced up front and on the rear's non-drive side, with a three-cross pattern on the drive side. In addition, they use the FTS (Force Transfer System) forged hub with four-bearing internals. The hubs require special tools (provided) for disassembly, but the process is relatively easy, and thanks to the sealed bearings they'll seldom need maintenance. The Crosslands are slightly heavier than the Maxes, due to the use of heavier brass spoke nipples and oversize profile rims.



Function: The Mavic wheels are quite stiff laterally, slightly more so than a normal set of wheels. The advantage, though, is that they are lighter than conventional wheels, which makes them quicker to get up to speed. The Crosslands don't have the wide brake track that's used with the Crossmax, so brake setup takes more time, but durability is high; we trued them up once and then simply rode them as hard as we could.

Dave's Wheels Sweet Dreams

Price: $509
Weight: 662/839 grams (f/r)
Contact: (800)275-5031
Design: The Sweet Dreams wheelset includes a radial-laced front wheel combined with a rear that has a radial-laced non-drive and a three-cross drive side. The front hub is built specifically for Dave's by White Industries and uses a thick, wide-spaced flange for radial spoke patterns. The rear hub is also built by WI, except it's a Speed Racer tandem unit using a special spoke pattern which is said to equalize spoke tension for increased lateral stiffness. Velocity Aeroheat rims are the final components and the 6161 aluminum hoops (typical is 6061) have bead-blasted sidewalls, an aero design and a 10-millimeter-tall brake track. Each wheelset is hand-built and prestressed by company namesake Dave Thomas.

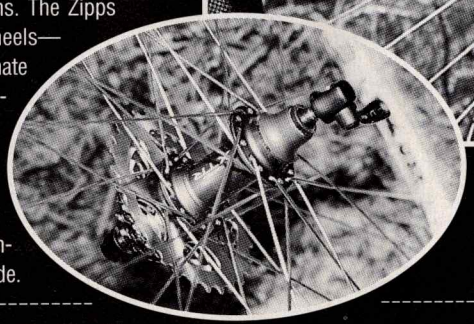


Function: The Sweet Dreams wheelset is without a doubt the nicest-riding wheelset we've tested; they feel incredible. We had over five months of riding aboard the wheels and, besides minor truing, we've had no durability problems either. The rims' brake track is a tad short, making proper brake setup critical to avoid torn tire sidewalls, but the deep-dish design makes cleaning the rims a cinch.

lightweight wheels

Zipp 515 Off-Road Wheels

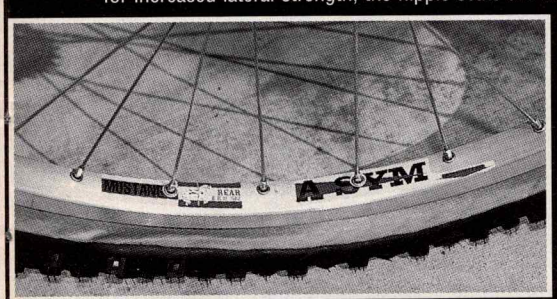
Price: $1040 (titanium spokes/XTR hubs), $742 (stainless spokes, XT hubs)
Weight: 769/953 grams (f/r)
Contact: (317)243-4230
Design: The Zipps use a normal-looking rim (though it's produced via a proprietary process) with a 12-millimeter-tall brake track. Molded to the rim is a carbon sheath that extends up the sidewall toward the hub. The sheath has a slight bulge to it, which is said to dampen vibration and impacts because the carbon can flex vertically under a load. A by-product of this design is lighter weight, brought on by the shorter spoke lengths (less metal, get it?). There's a special construction technique used at the spoke-to-sheath attachment point which provides more support for the spokes. The Zipps require valve extenders for the tubes, and our test set was built up on Shimano XTR hubs with titanium spokes.



Function: The Zipp is an excellent wheel and it's unlike any we've ever tried. It provides the vibration damping of a full-composite wheel with the light weight of a normal spoked wheel. We didn't notice vertical plushness so much as vibration damping, and the wheels' lateral stiffness makes for more confidence in turns. The Zipps are louder than spoked wheels—the harmonics tend to resonate in the sheath—but they accelerate better than all but the Dave's. The only thing we didn't love was the valve extenders, which leaked and forced us to reinflate the tires before every ride.

Bontrager Mustang

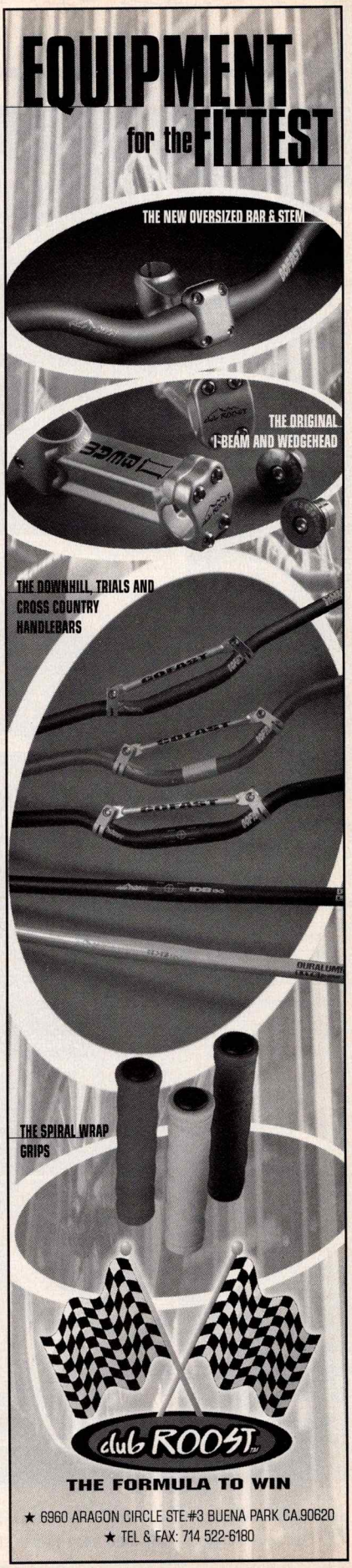
Price: $485
Weight: 798/1002 grams (f/r)
Contact: (800)476-Bike
Design: Keith Bontrager designed the Mustang Asym asymmetric rear rim because placing the spokes off center allowed him to lessen dish to improve strength and durability. The wheelset tested here uses this rim spoked to a Shimano XTR hub and a symmetrical Mustang front rim with the same hub. The 6061 aluminum rims offer other advantages too: They're precision-extruded for increased lateral strength, the nipple seats are designed to hold up better over time, and they have a 13-millimeter-tall brake track.



Function: The Bontrager wheel isn't much lighter than a normal wheel. It is, however, more stiff laterally, especially when riding aggressively on rough, off-camber terrain. The Mustangs also benefit the tall sidewall, which makes setting up the brakes a breeze. They hold up to some pretty serious abuse, and it took only minor truing to keep them up to par.

Mountain Biker's Choice

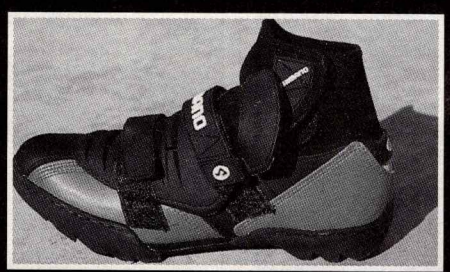
If we had our choice, we'd have to go with the Sweet Dreams wheelset. They're hand-built, just over $500 and the improved ride is as obvious as a slap in the face.



shoes

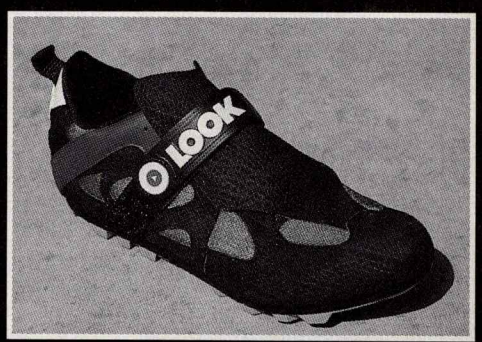
Shimano Adrenalon

Price: $145
Contact: (800)353-3817
Design: The Adrenalon is a high-top shoe built for downhillers. It uses a single hook-and-loop closure on an upper neoprene cuff, plus two straps to keep a plastic lace cover tight over the foot. The shank is semi-stiff—there's a small amount of bend at the toe—and the sole tread is aggressive. The heel has tall knobs, while shorter, angled notches run from the cleat insertion point to the toe. The sole wraps around onto the shoe's upper for protection.
Function: Even though the Adrenalon is designed specifically for DH, we're including it in this test because it turned out to be a good all-around shoe. It's warmer than a low-top model—the neoprene cuff is short on ventilation—but the increased ankle protection is well appreciated. They're surprisingly easy to put on, mainly because the design lets you spread the shoes wide by simply unhooking the straps. With no laces, we did notice some minor heel slippage, and the sole started separating after only a few rides.



Look MS3S

Price: $130
Contact: (800)578-5790
Design: The MS3S uses laces and a single hook-and-loop strap to secure the shoe. The uppers are built of Cordura and there's a lace cover to keep dirt out during hike-a-bike sections. The shank is super stiff, much like a high-end racing shoe, but the toe is turned up for easier walking and tall treads line the sole. There's also a loop at the heel for pulling the shoes on.
Function: The sole compound is hard, resulting in some traction problems on hard terrain, but it proved to be quite durable over time and the tall knobs dig deep into soft ground. Though it uses portions of breathable fabric on the uppers, the Look is warmer than all but the Shimano high-tops, a nice feature when it's cold out. The biggest complaint we have is that the Looks don't have built-in mounts for clipless-pedal cleats, but instead use holders that must be inserted under the inner soles. Comfortwise, the shoes are excellent, with an ergonomically shaped heel cup and a snug feel from the start.



Answer Accelerator

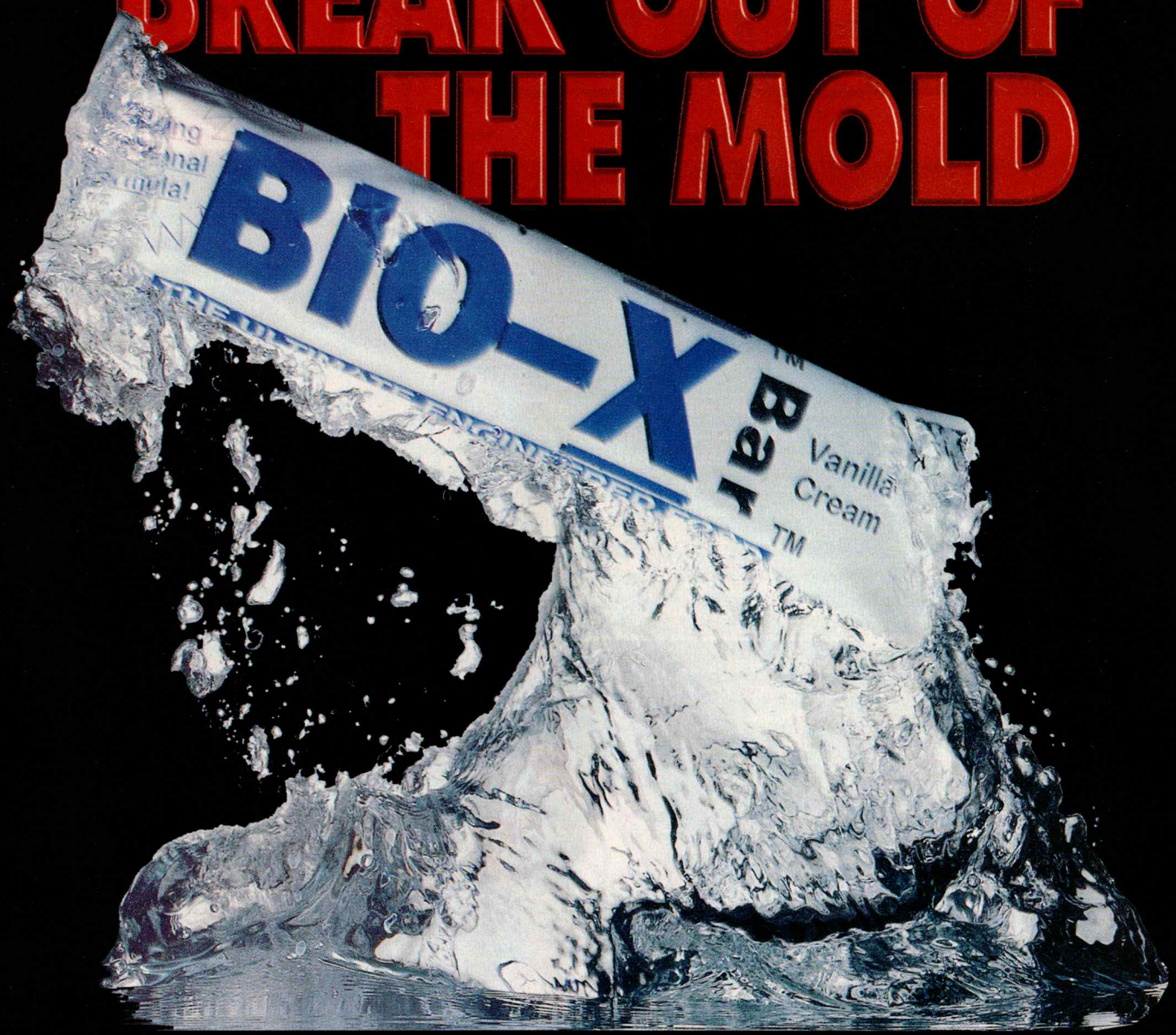
Price: $119.95
Contact: (805)257-4411
Design: Like the Alpinestars and Looks, the Accelerator has a very stiff shank, but it uses only two straps to secure the shoe. The forward strap is angled to facilitate a tight fit, and both wide, thick closures are replaceable. The sole has an aggressive tread pattern, with tall knobs front and rear, and it wraps up to protect the shoe's toe and heel. The Accelerators are constructed of a synthetic leather and have breathable mesh portions across the top. There are also marks on the soles which aid in properly aligning the cleats.
Function: The Accelerator is one of the most comfortable shoes out there, and it's surprising how tightly you can adjust the fit with just the two straps. The shoe is super wide and the straps are so long that their ends hang over the sides of the shoe, but because of the cupped heel, there's only a minor amount of heel slippage. The nose and heel patches work well to keep the shoes from getting beat up during hiking. All in all, the Accelerator provides great traction at the expense of some durability.

Alpinestars System 4

Price: $134.95
Contact: (310)542-5996
Design: The System 4 uses both laces and straps to secure the shoe and has front spike mounts for muddy conditions. The midsole shank is quite stiff, and the knobs on the heel and behind the toe are tall and aggressively designed. The uppers are made of Lorica with a breathable mesh like the more expensive System 6, but the System 4 has a lower cut and lacks the adjustable heel strap.
Function: Like the System 6 shoe we tested previously, the System 4's uppers at the nose and heel became worn-looking rather quickly, but the effect is merely cosmetic. The sole has an extremely hard rubber compound, which, when combined with the stiff shank, made them somewhat difficult to walk in, but the durability was excellent. There was only minor sole wear after many days of riding. Also, the shoes felt good right from the start, and after some hearty abuse.

Mountain Biker's Choice **Though we liked the Alpinestars' comfort, the Shimanos' foot protection and the Looks' snug fit, it was the Answers, with their easy-to-use straps and ergonomic design, that we reached for first before each ride.**

BREAK OUT OF THE MOLD



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Spaghetti

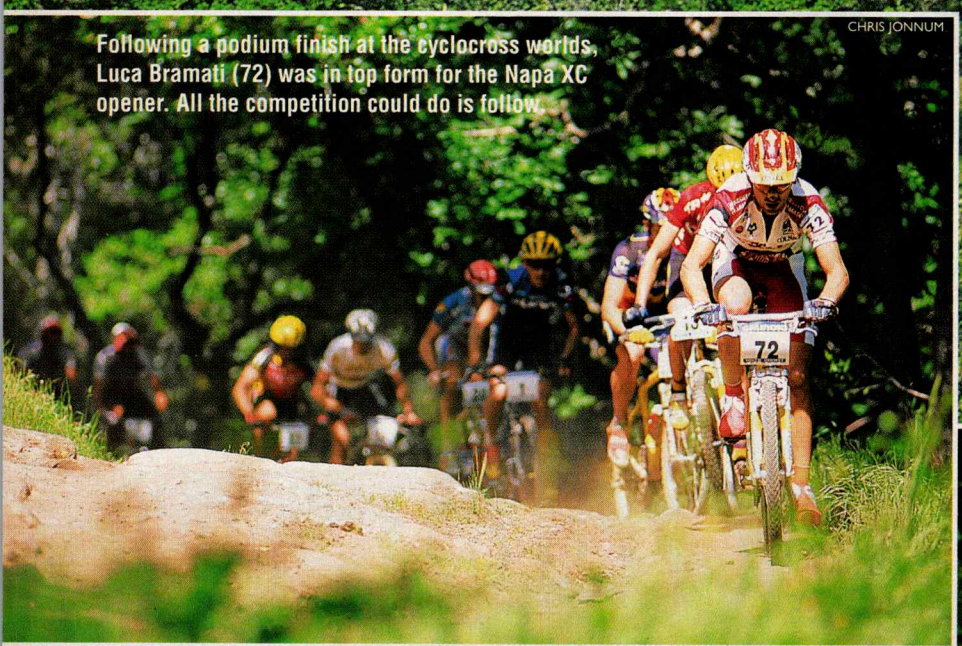
BY CHRIS JONNUM

The World Cup XC opener is always—by its very ice-breaking nature—a high-focus, press-heavy event, but this year's first round occupied an unusually sizeable chunk of the mountain bike world's fickle attention. The public shrugged off unexpected gate fees to attend in multitudes not characteristic of an American XC competition, and you couldn't swing a Nikon without knocking over another race photographer. Why? Simple. It was the 60th World Cup event ever run, and the race venue was within spitting distance of hype-heavy Marin County, California (if you haven't yet learned of the area's claim to MTB fame, don't worry: you no doubt will before your first hour as a mountain biker is through). Though the gathering was in Napa's wine country and not Mt. Tam's whine country, even the most cynical fans had to acknowledge the importance of mountain bike racing's return to the general area of its birthplace (see, told ya you'd learn). Then again, even the gung ho enthusiasts were forced to admit that after so much build-up, the potential was high for anticlimactic racing.

Italians aren't strangers to this type of scenario. They're accustomed to hype (witness porn star–politician Ciciollini), paparazzi (Fellini invented the term), wine country (they live in one) and tradition (roadies are actually *respected* over there). And as a result, it was a pair of Italians who rose to the occasion in Napa. Paola Pezzo donned shorts the color of her Olympic medal before absolutely schooling Saturday's female ranks, and while men's winner Luca Bramati will forego the golden breeches until people stop saying "Luca who?" his Sunday dominance was also quite impressive. By weekend's end, most concurred that Paola and Luca had achieved the near impossible: Their displays actually had come close to justifying the prerace horn-blowing and publicizing. Bet the NFL's Superbowl promotors wish Italians knew a pigskin from a gridiron.

CHRIS JONNUM

Following a podium finish at the cyclocross worlds, Luca Bramati (72) was in top form for the Napa XC opener. All the competition could do is follow.



JOEL SMITH

At 31 miles long and nearly three hours in duration, the men's race proved to be largely a matter of survival. Schwinn's Steve Larsen (right) shows the signs of fatigue prior to his premature retirement from the race.

CHRIS JONNUM

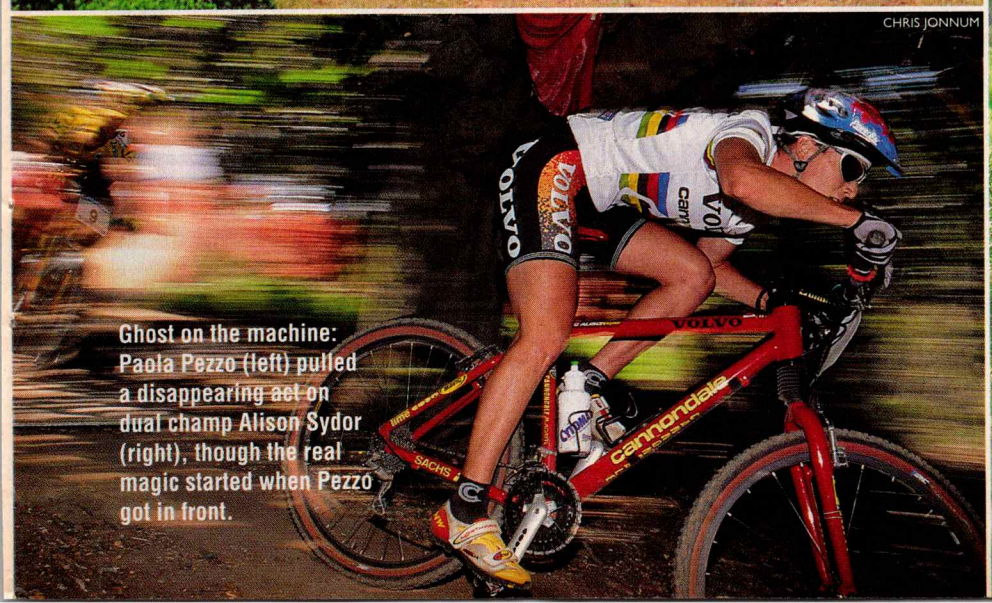
Western

MB *sport*

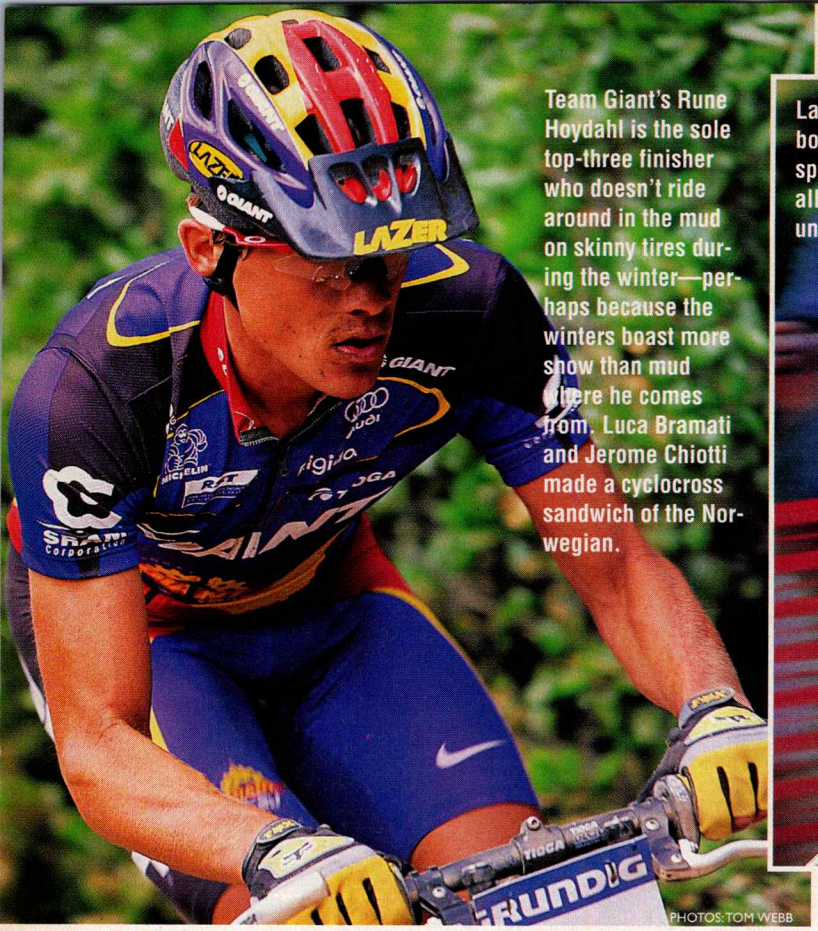
TOM KEBB

The Napa course was noted for its abundance of singletrack, making life enjoyable for the first 10 or so riders, but brutal for those trying to work their way up. Frontrunner Gunn-Rita Dahle was one of those having fun.

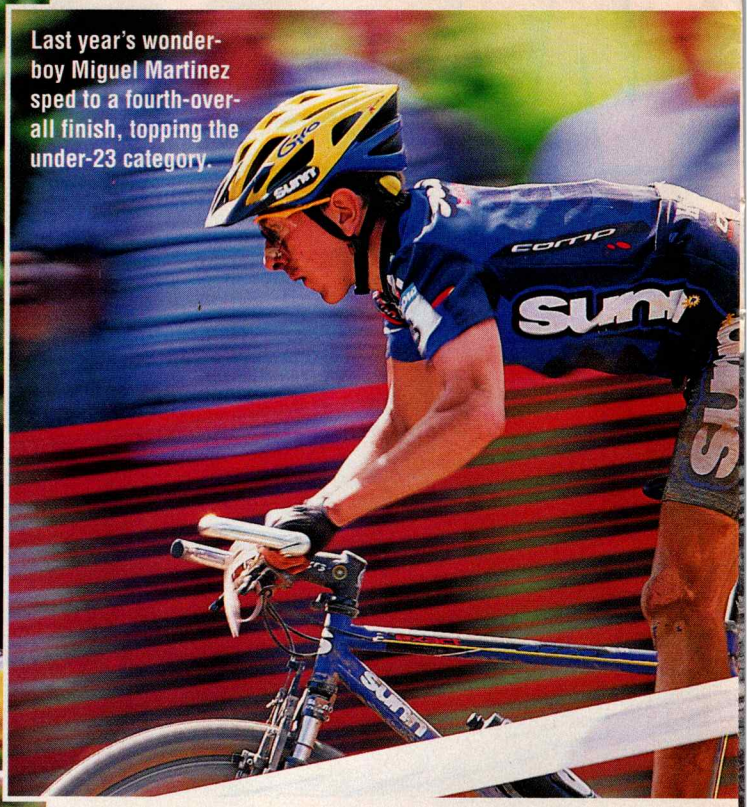
CHRIS JONNUM



Ghost on the machine: Paola Pezzo (left) pulled a disappearing act on dual champ Alison Sydor (right), though the real magic started when Pezzo got in front.



Team Giant's Rune Hoydahl is the sole top-three finisher who doesn't ride around in the mud on skinny tires during the winter—perhaps because the winters boast more snow than mud where he comes from. Luca Bramati and Jerome Chiotti made a cyclocross sandwich of the Norwegian.

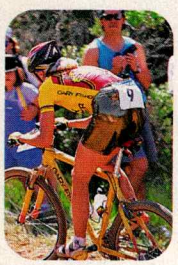


Last year's wonder-boy Miguel Martinez sped to a fourth-overall finish, topping the under-23 category.

PHOTOS: TOM WEBB

Pit Bull

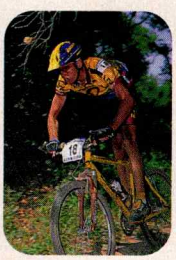
In addition to an attention-grabbing gimmick, Paola Pezzo's gold shorts were a statement: The Italian means to take the World Cup title this year.



Pezzo has proven that she has the ability to peak for one-day titles (she's won the European championships, the worlds and Olympic gold), but has yet to excel over the grueling, multiround World Cup.

They're not just for downhill anymore, part 1: Several pros, including the entire Giant Europe squad, were running disc brakes front and rear at Napa. Hope, Hayes and Formula were all represented.

Just one week after racing in Napa, the World Cup caravan traveled halfway around the globe to New Zealand. 20-year-old Aussie Cadel Evans (pictured) used a semi-home-court advantage to top the men's ranks. Many of the women opted to sit out the event, leaving a field of just 19 starters for Paola Pezzo to trounce. Despite her four-minute round-two winning margin over Alison Sydor, Pezzo claims to be riding at just 80 percent effort.

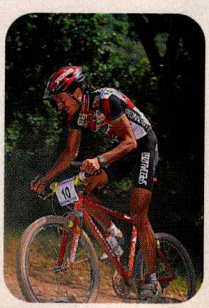


The Napa series opener marked the first time that the men's and women's races were held on separate days. Crowds were decent for both the Saturday women's race and the Sunday men's contest, but opinions were mixed on the new format. Some spectators resented having to give up their entire weekend to see both classes, while others appreciated the more leisurely schedule.

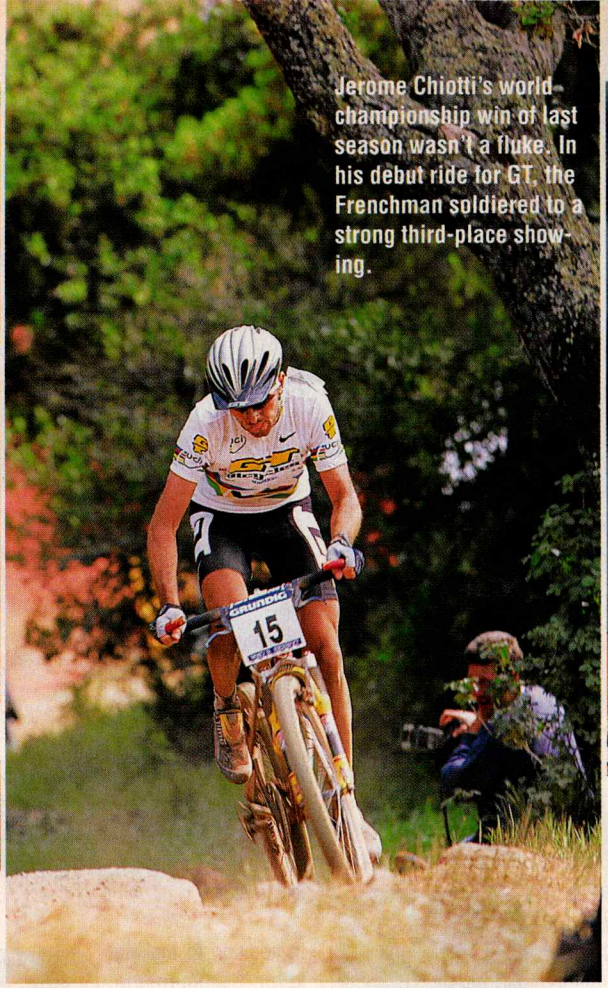
Pro teams sponsored by Spinergy wheels are nothing new, but many people were surprised to see pro teams actually *using* the composite hoops in XC competition. Weight has been a concern in the past, but the company's new models are feathery enough for the likes of Plymouth-Ellsworth's Sara Ellis (pictured), Sunn-Nike's Miguel Martinez and many others.

More than a few spectators were unpleasantly surprised to learn of a $7 gate fee for watching the race (MTB competitions don't normally charge for spectating). The fact that men's and women's classes were run on different days doubled the cost for many fans, and to make matters worse, no bikes were allowed inside the gates. This proved harmful to services like the Park Workstation, which had purchased expo spaces under the impression that they'd be able to work on customers' bikes.

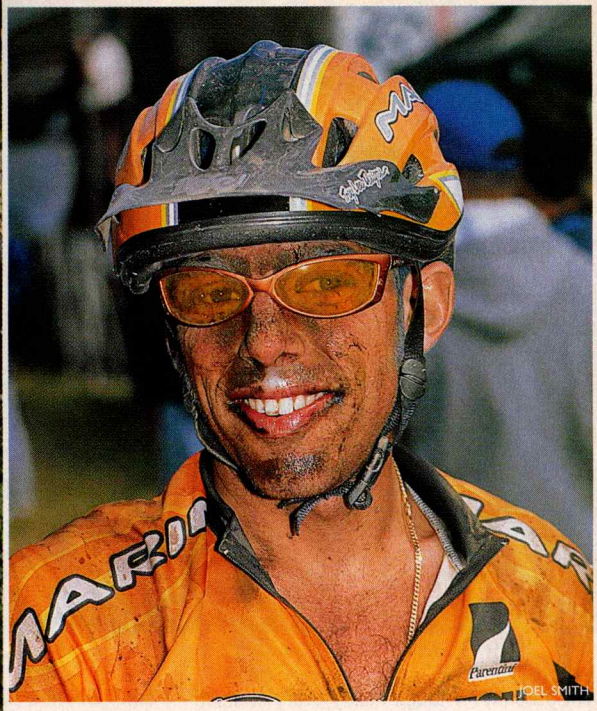
Many were surprised that Bart Brentjens' debut World Cup ride for Specialized–Mountain Dew wasn't more impressive. The Olympic gold medalist finished a lowly 27th, and was mired so far back on lap one that many wondered if he



PHOTOS: JOEL SMITH, CHRIS JONNUM, TOM WEBB



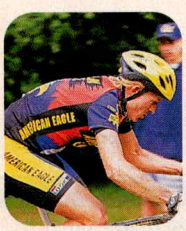
Jerome Chiotti's world-championship win of last season wasn't a fluke. In his debut ride for GT, the Frenchman soldiered to a strong third-place showing.



JOEL SMITH

Mired in midpack on the start, Marin's Kirk Molday appeared to be wearing much of the course by the time he reached the finish. It was worth it; Molday finished in 12th place, then followed with a fifth in New Zealand at the second round.

had flatted. That suspicion proved false, however, as the Dutchman claimed to have merely suffered an off day.

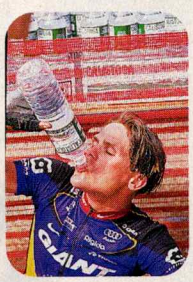


Among the most noticeable of the many rider-team changes was Henrik Djernis' absence from Pro-Flex. The Dane is now aboard American Eagle, the team that Bart Brentjens rode for last year.

Observant spectators noticed that the suspension forks on many of the pros' bikes appeared to be doing little in the way of suspending. According to the rumor mill, the oversprung forks are an effort to keep pedal-induced bobbing to a minimum. Most World Cup courses are fairly smooth, and riders are said to be content if the fork simply takes the edge off what rough terrain there is (not unlike the logic behind suspension seatposts).

One of the most popular course features in Napa was the Disco Flyover, an over-under bridge at the intersection of the figure-8 course. Though spectators had to hoof it a fair distance to access the spot, they were greeted by food, blaring music (hence the name), outhouses and the opportunity to see the riders twice per lap.

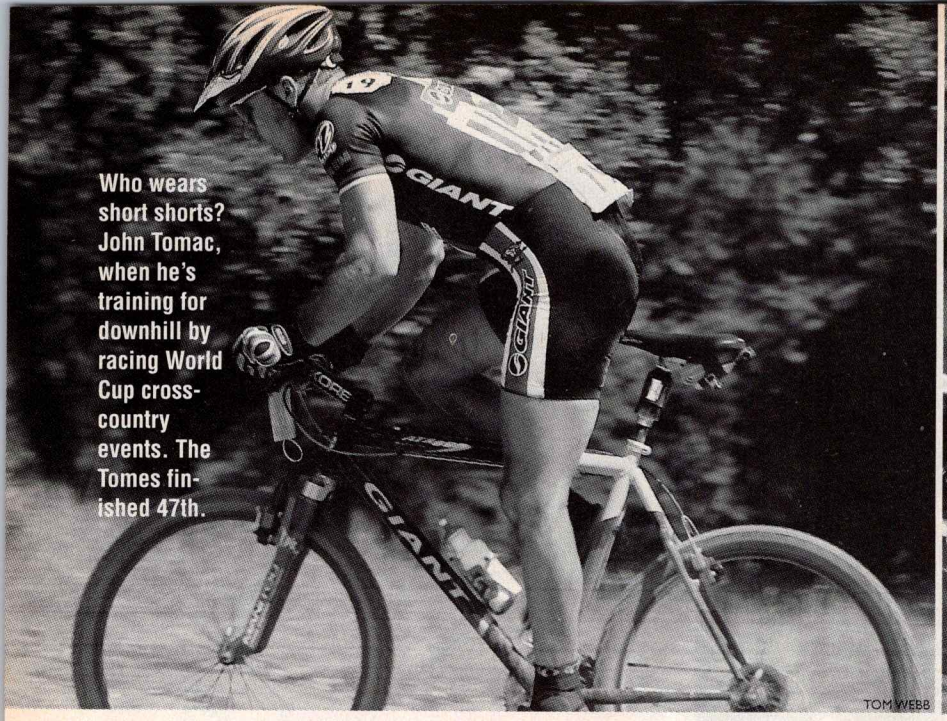
In case you were wondering if World Cup pros feel taxed following a 31-mile racing effort, we personally witnessed runner-up Rune Hoydahl draining this entire 1.5-liter bottle of water without once removing it from his mouth. And in case you're of the impression that the best rider is always the smoothest rider, Paola Pezzo crashed "three or four times" on her way to the women's victory.



POed: Poison oak was in abundance in Napa, as several racers and spectators found out the hard way. While shooting race photos, associate editor Chris Jonnum set a new personal record by incurring the rash for the fourth time in one year—this despite making some rather extreme efforts to avoid the itch weed (he periodically blocked racers in his refusal to set foot off the main course).

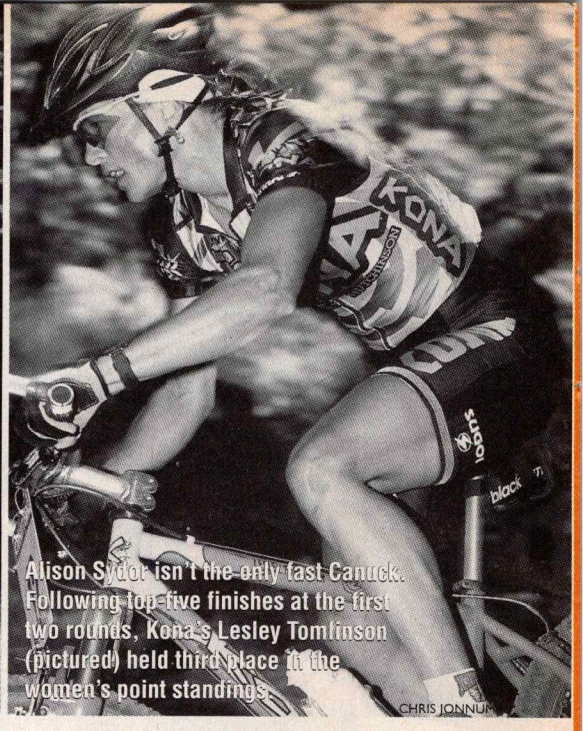
A prime candidate for Gary Fisher's new Genesis geometry (see "Knobby Knotes").

With her fifth-place finish, Ruthie Matthes (pictured) was both the top-placing American rider and the top-placing full-suspension rider, despite being bothered by a case of bronchitis. The former Volvic-PowerBar pilot is now campaigning a pivotless Moots YBB for the PowerBar team. Trek-VW's Peter Weber was the top American male in 17th position, with TWP's Floyd Landis also turning in an impressive ride for 22nd.



Who wears short shorts? John Tomac, when he's training for downhill by racing World Cup cross-country events. The Tomes finished 47th.

TOM WEBB



Alison Sydor isn't the only fast Canuck. Following top-five finishes at the first two rounds, Kona's Lesley Tomlinson (pictured) held third place in the women's point standings.

CHRIS JONNUM

Who's Benny? Though nearly every competitor sported this sticker on his or her number plate, no one seemed to know, and we're not sure despite the best explanation attempts of Shimano's Brian Stanley. "He's our new superfan," says Stanley. "He knows all the stats on the Shimano riders and he'll be following the circuit and appearing on our Web site (www.shimano.com/benny) and at trade shows. He'll also collect signed rider memorabilia and auction it off for charity at the end of the season." So, he's real? "No, he's fictional." Then how—oh, never mind.

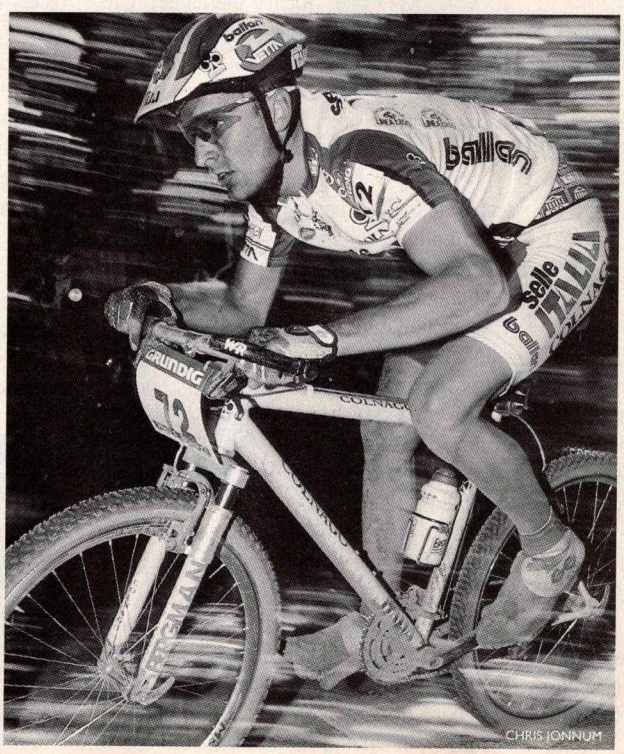
They're not just for downhill anymore, part 2: Alison Sydor has officially won her way into the hearts of the *Mountain Biker* editorial staff. Not only is she an incredible racer and a really nice person, but Sydor was running a Club Roost riser bar on her Cannondale hardtail at Napa, but just as we thought Sydor had proven us sane, we noticed her brakes and thought maybe she was the crazy one: Alison runs a cantilever up front and a linear-pull in the rear.

In addition to making killer suspension forks, Marzocchi's Bryson Martin does a perfect imitation of *Mountain Biker* editorial director Tom Webb during deadline.

His Name is Luca

Who is this guy and what's a Colnago? seemed to be the thought running through most people's minds as Luca Bramati quietly ran away from the men's pack.

The answer: Bramati is an accomplished, Selle Italia–sponsored cyclocrosser, and Colnago is an Italian company more famous for its road bikes than its MTBs. Still, Bramati's not exactly a stranger to mountain bikes, having placed eighth in the Atlanta Olympics and first at the '95 World Cup series finale. Ironically, it may be Bramati's recent cyclocross success that helped in his impressive showing at Napa. He was in peak form, while many other racers were planning to hit their stride later in the series. "I decided after finishing third in the cyclocross world championships to keep my form," explained Bramati, who will not contest the entire series.



CHRIS JONNUM

Results

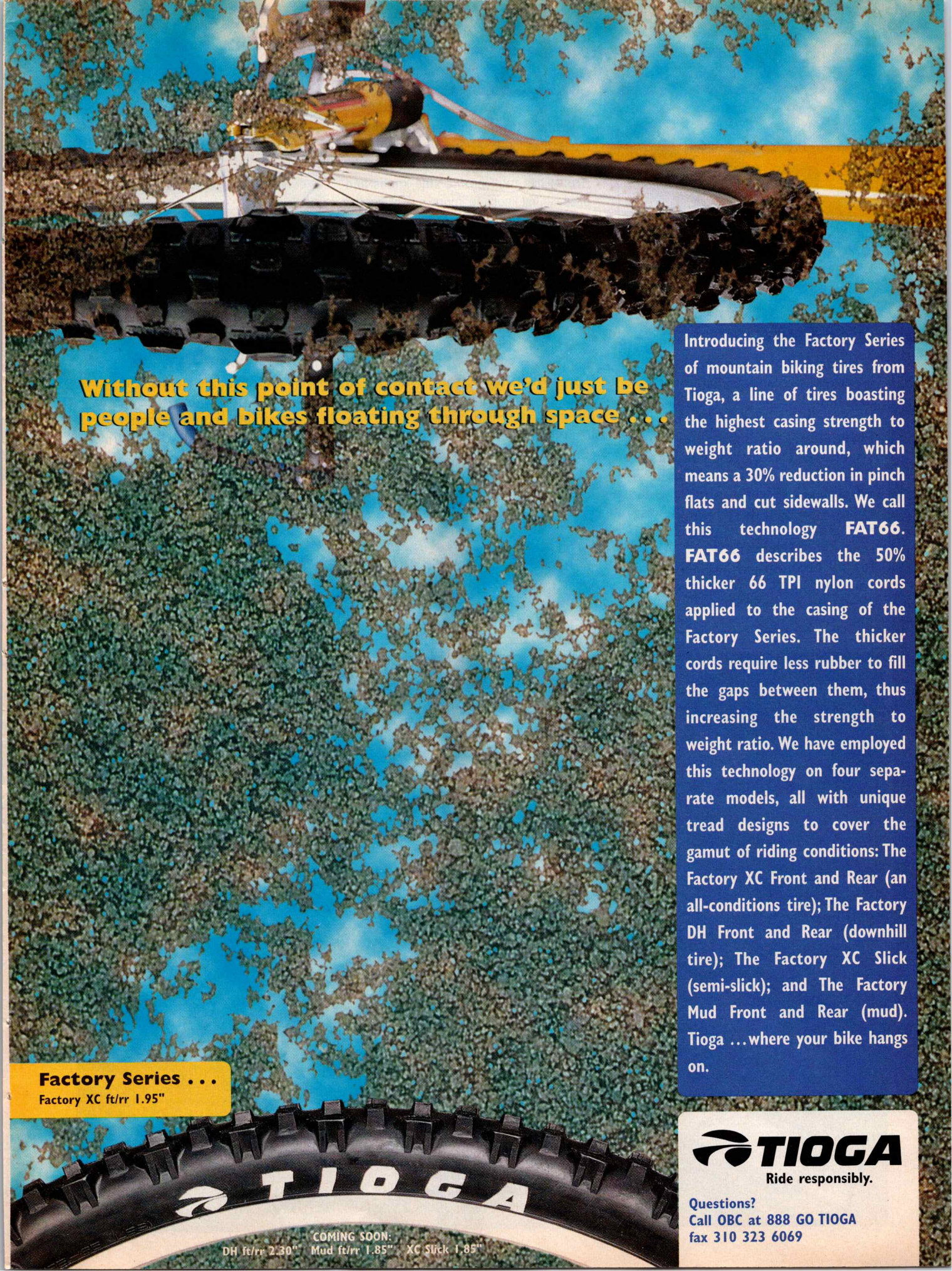
Napa, California, World Cup XC Opener

Women

1. Paola Pezzo (Italy) Gary Fisher
2. Alison Sydor (Canada) Volvo-Cannondale
3. Chantal Daucourt (Switzerland) Trek-Volkswagen

Men

1. Luca Bramati (Italy) Selle Italia
2. Rune Hoydahl (Norway) Giant Europe
3. Jerome Chiotti (France) GT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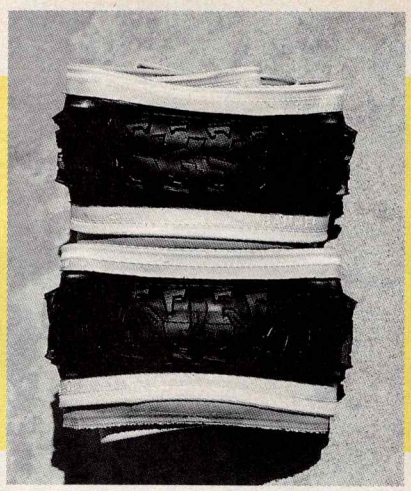
Hammer Gel is now easier to use, less expensive and available in three new flavors. New packaging that utilizes a five-serving refillable Gel Flask allows for improved on-bike dispensing. The tasty new flavors include espresso (with 50 milligrams of caffeine per serving), raspberry and unflavored—and there's still the original chocolate and vanilla. The 24-serving Hammer Jug retails for an economical $12. **Hammer Nutrition,** (800)336-1977; www.hammernutrition.com.

Kenda's front- and rear-specific Pro model tires ideally pair steering control and traction for a superior tire set. The Hammer (front) has high-profile side knobs and deep central knobs to improve tracking; the Anvil (rear) has long horizontal knobs for increased traction and enhanced braking. Available widths are 1.95 inches or 2.10. Suggested retail is $29.99. **Kenda USA,** (614)866-9803.



The Switch Pump from Zefal is a minipump that changes from Presta to Schraeder—and back, of course—with the simple flick of a switch. It comes in a durable ABS resin version for $26, and a lightweight aluminum model for $30, in black, bright yellow, red, Ti gray or brushed aluminum. **Zefal USA,** (214)630-5514.

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Erick Dunn	*trust funder*	Zaskar
Tito Fuentes	*computer sales*	LTS-1
Mike Hall	*carpenter*	LTS-1
Carl Iverson	*architect*	RTS-1
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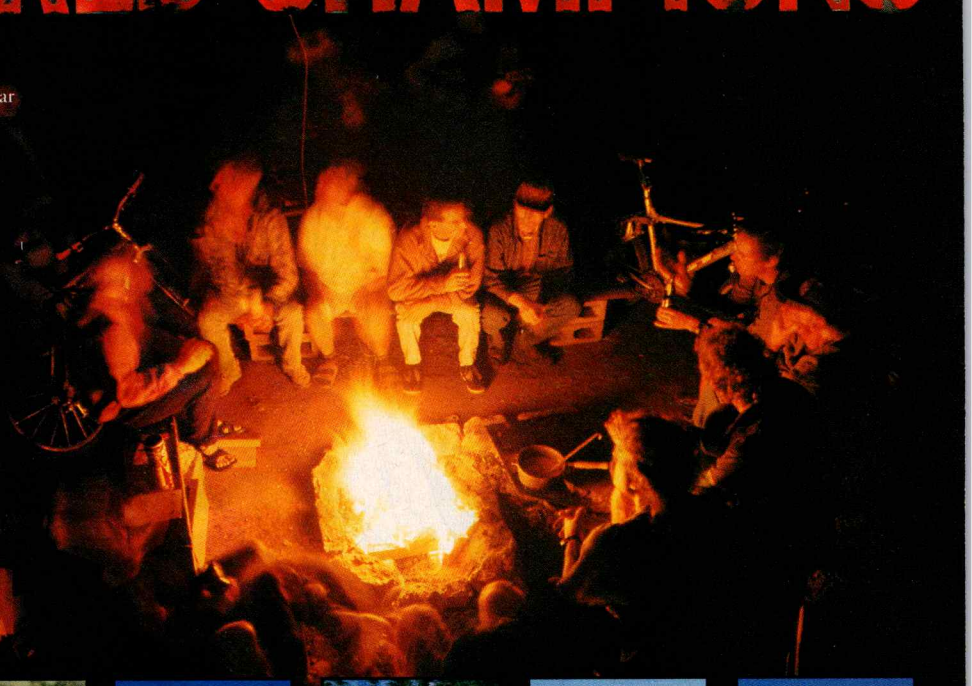
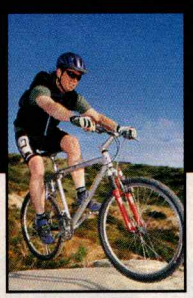
Dave Marchesse	*car cleaner*	LTS-1
Mike McDonald	*woodworker*	Zaskar
Claude Sevigny	*woodworker*	LTS-1
Rob Shaw	*stockbroker*	LTS-1
Andy Schoembs	*woodworker*	Zaskar
Tom Taylor	*roofing specialist*	LTS-1
Ross Tucker	*machinist*	LTS-1
Tori Wolfe	*top gun fighter pilot*	Zaskar



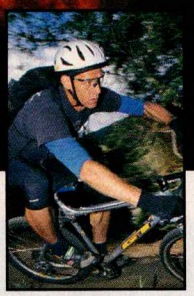
Dirk Maes
stained-glass artist
LTS-1, LTS-DH, Zaskar



Mike Rosecrans
internet services
LTS-1

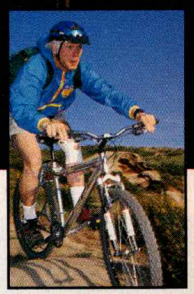
Dave Wonderly
environmental tester
LTS-1

Sten Erik Kramer, MD
orthopedic medicine
LTS-1



Mike Olsen
postal worker
LTS-1

Rob Schroff
woodworker
LTS-3



Paul Hengstebeck
tooth maker
LTS-1

Don't let the lack of rainbow jerseys and the post-ride campfire fool you. Even though most of these guys have families and full-time jobs, they ride like few others on the planet. From a homegrown downhill race on a little-known trail in Laguna Beach, to a 5-hour weekday jaunt that would crush a handful of NORBA pros, the Laguna Rads ride, and ride hard. The Laguna Rads buy their equipment, sleep in tents, and consider beer an appropriate post-ride protein drink. Like everyone who finds inspiration on two wheels on a buffed single-track, the Laguna Rads are the "real world" champions.

These Rads ride GT.

1997 GT LTS-1

GT Bicycles

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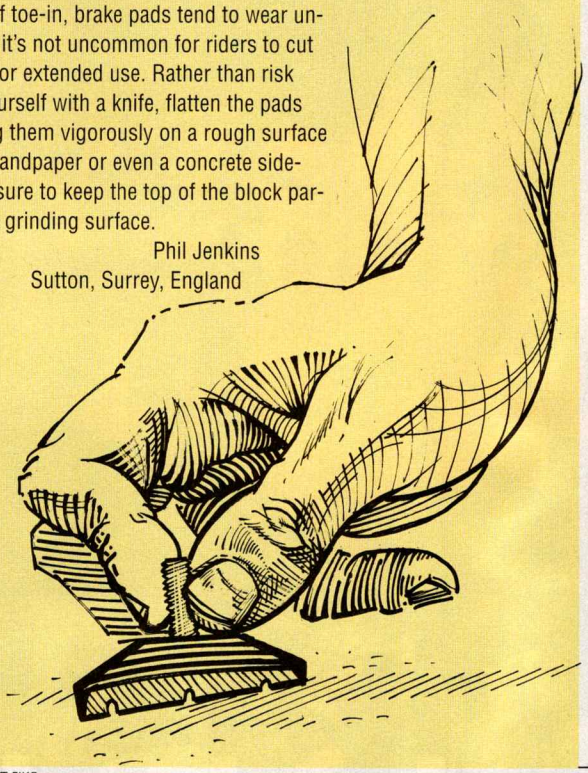
Flat Pads

Because of toe-in, brake pads tend to wear unevenly, so it's not uncommon for riders to cut them flat for extended use. Rather than risk cutting yourself with a knife, flatten the pads by rubbing them vigorously on a rough surface (such as sandpaper or even a concrete sidewalk). Be sure to keep the top of the block parallel to the grinding surface.

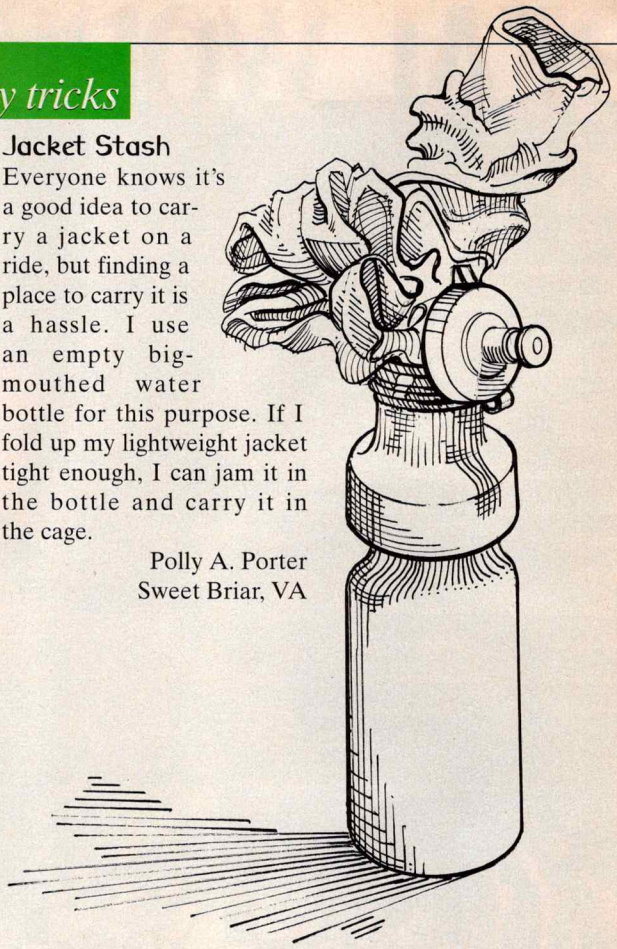
Phil Jenkins
Sutton, Surrey, England



Jacket Stash

Everyone knows it's a good idea to carry a jacket on a ride, but finding a place to carry it is a hassle. I use an empty big-mouthed water bottle for this purpose. If I fold up my lightweight jacket tight enough, I can jam it in the bottle and carry it in the cage.

Polly A. Porter
Sweet Briar, VA



ILLUSTRATIONS: SCOTT FIKE

100 miles

30 tubes of Cliff Shot

8 liters of water

6 moose

3 pairs of socks

1 Cantina jacket

February 15th, 1997 Big Lake, Alaska. Ultra-Distance racer Mike Curiak competing in the 100-mile Iditasport Mountain Bike Race.

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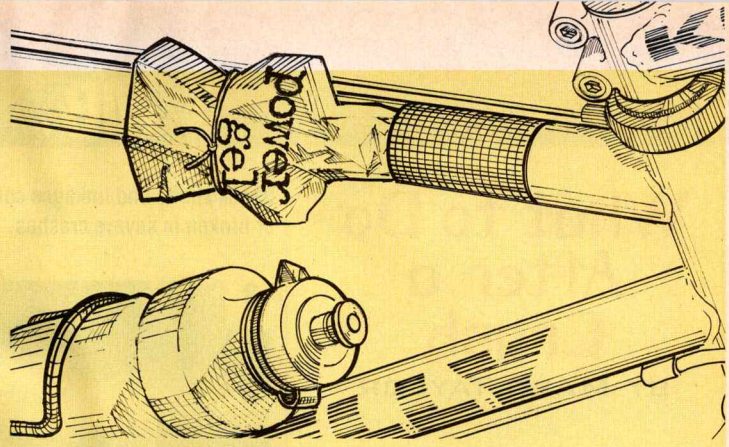
Quick Gel

Gel packets are a great means of restoring your energy mid-race, but carrying and accessing them can be a pain. Try taping the tips of several packets to your stem or top tube (you can layer them like shingles) and securing them with a rubber band. When you need a boost, pull the rubber band back and yank on the gel packet. The tip will be left on the frame and the packet will be ready to use. Remember to stick the used pack in a jersey pocket rather than littering.

Chris Johnson
San Diego, CA



Frame Lube?

To prevent the insides of my chrome-moly bike frame from rusting, I had it oil-spray treated by the same company that treats my cars. The oil is sprayed inside the frame tubes, where it displaces any moisture.

Mario A. Javier
Oakville, Ontario, Canada

Hold a Candle to It

I hate how the hex heads on my shoes' cleat bolts always fill with mud, making it difficult to get a wrench into them. That's why after getting the cleats set in their proper position, I fill the bolt heads with dripping wax from a candle. Wax is easier than mud to pick out if adjustments are needed.

Denis Wright
Lagos, Portugal

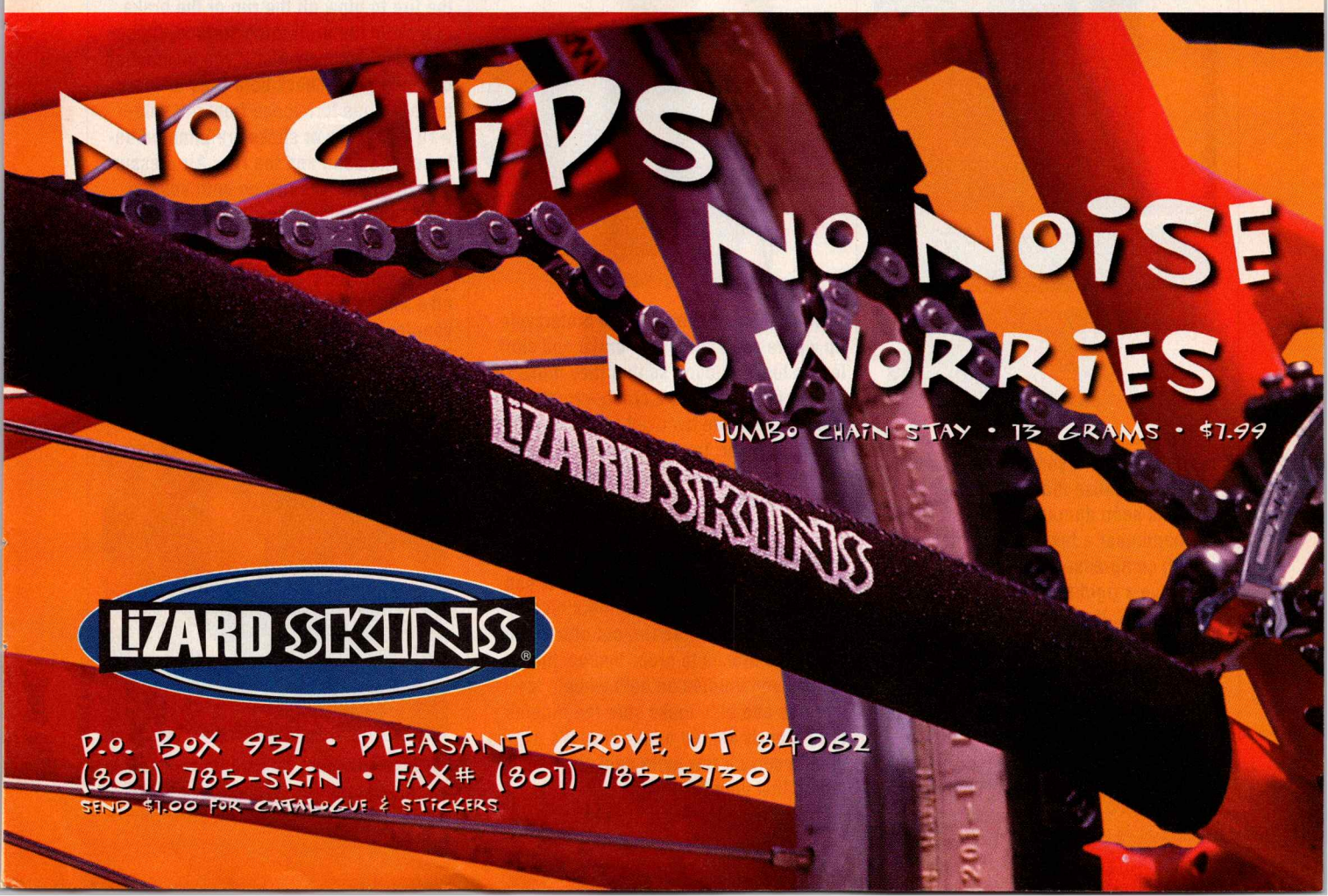
Bag It

When cleaning my bike's bearings and such after a muddy ride, I'll put the small parts in sealable sandwich baggies and label them. This does several things: keeps me from losing them; keeps them from getting dirty; and helps me remember what the parts are when I'm reinstalling them.

Mike Miller
Cogan Station, PA

"Dirty Tricks" is a forum for riders to share helpful hints they've devised. We pay $25 for each tip we print (or, if you wish, we will donate your payment to IMBA). Illustrated tips are preferred, so please include a sketch or photo if appropriate (sorry, we can't return any materials you send). Mail your tip to Mountain Biker, *"Dirty Tricks," 6420 Wilshire Blvd., 5th Floor, Los Angeles, CA 90048-5515. You may also e-mail tips to MTBmail@petersenpub.com.* ***To receive payment, you must include your name, address and Social Security number.***

As we print many tips about a variety of subjects, we cannot vouch for the accuracy or safety of every tip we print. We urge you to take commonsense precautions before attempting any of these tips.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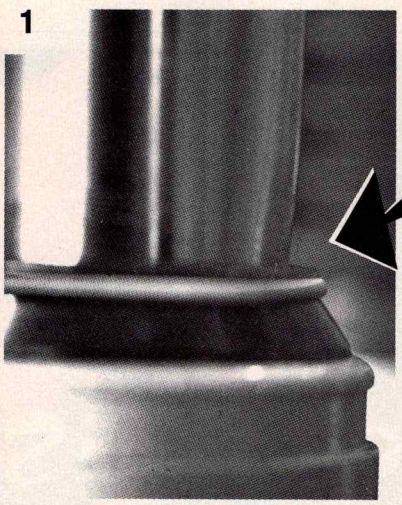
What to Do After a Crash

BY MARC TAYLOR

Nobody wants to crash, but if you ride enough, it's going to happen. When it does, you need to give your bike a thorough once-over before you jump back on and start riding. Yes, I know your buddies are disappearing down the trail, but don't chase them down until you go through the following steps.

By the way, it's not what normally goes through your mind as you're flipping through the air, but if you're going to crash anyway, try doing so to the left. Why? Your bike's drivetrain is on the right, so mechanical and bodily damage are both more likely in right-side crashes.

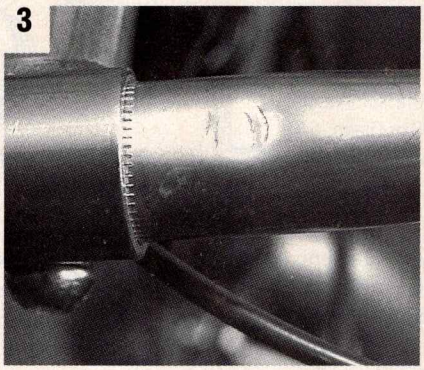
1



1. It's bad enough to crash once, but it's really a shame if you fall again because you don't realize that your suspension fork has been damaged. Push down on the handlebar a few times to make sure it both compresses and returns. Even if you have a rigid fork, check for cracks in the paint. If you can't see the actual cracks, slight ripples in the paint may divulge their presence.

2. If you have a full-suspension bike, push down on the seat a few times to make sure the suspension moves freely, without any chafing sounds or clunks. Shock shafts and linkages can become bent or broken in severe crashes.

3



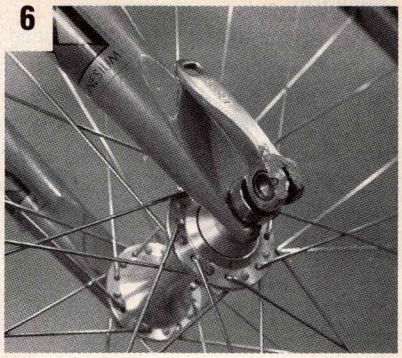
3. Because it sticks out like a big lever, the handlebar can incur serious damage in a crash, and riding with a damaged bar is begging for trouble. Start by looking for dents near the stem, but also check the ends to ensure they haven't split. Even if the bar appears to be fine, check to see if it creaks when you push down on it, and if it does, replace it. If the creaking persists, try replacing the stem. And finally, check for cracks in your bar-ends, especially if they're welded or are made from carbon fiber.

4

4. You probably know the old motorcycle tip where you set up your brake and shift levers loose enough so that they move (instead of breaking) in a crash—right? If so, you can push the tweaked levers back into position. If not, take the time to inspect the levers and shifter pod before you jump back on the bike.

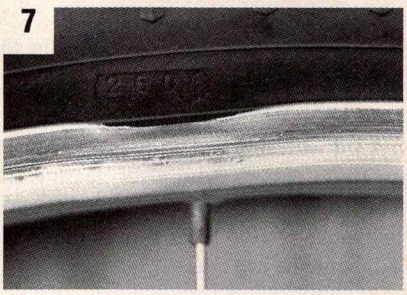
5. Brushing your wheel against a rock, rut or tree can result in bent spokes, as can the impact of crashing. Riding a bike in this state can pull the rim out of true and cause the brakes to grab. Inspect the spokes and nipples on both wheels for damage and also make sure the nipples are properly seated on the rim. It's a good idea to carry a few extra spokes of each length that your bike uses.

6



6. Be sure to check your quick-release skewers after a crash. Not only can they open during a hard impact, but hitting rocks can even snap or grind down the levers over time.

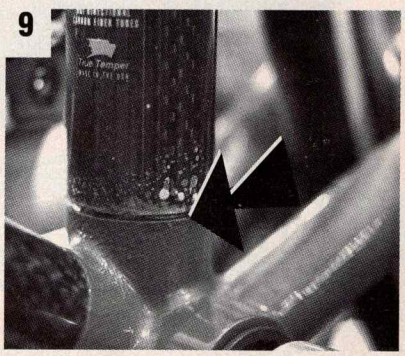
7



7. Hitting a rock or hole can dent or even crack the rim, which can in turn cause the tire to blow off the rim or the brake to lock on the protruding surface. Closely inspect both wheels. If you've crashed by sliding out, check both tires to see if the bead has torn loose from the sidewall or if rocks or sticks are jammed between the bead and the rim. Air pressure can often hold the tire on until you get home and replace the rim.

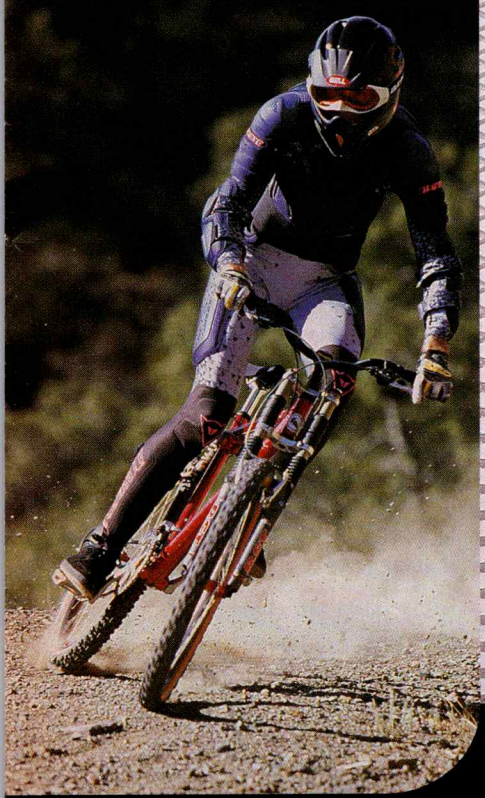
8. If a crash misaligned your handlebar, with a quill stem, stand in front of the bike while gripping the wheel between your legs, and twist hard on the handlebar. With a threadless stem, you'll have to loosen the bolts that clamp the stem to the steerer tube before you twist.

9



9. Closely inspect your frame for dents. A dented steel frame tube may not fail

CHANGE IS GOOD



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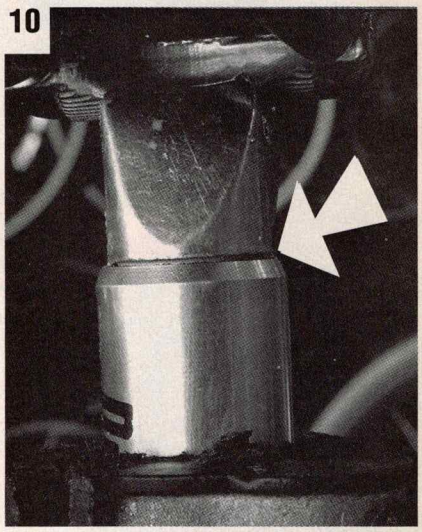
today, but it probably will in time, so keep an eye on it. If you've dented an aluminum frame, have it inspected by a professional mechanic; it's probably time to think about a new one. Cracks are even more serious (though usually less obvious), so check for them around the frame welds. The underside of the weld where the head tube meets the down tube is especially susceptible to damage. If you have a bonded frame (like the one pictured), check for separation at the bond joints in addition to inspecting the tubes.

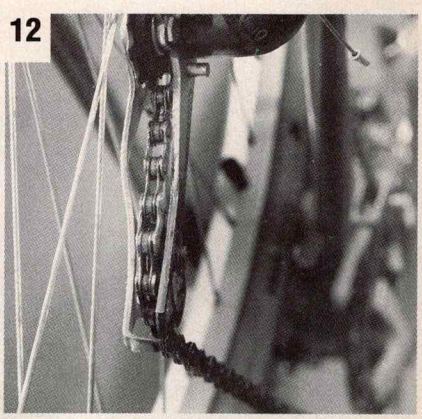
10



10. On most seatposts, the seat clamp is a separate piece that's pressed, welded or pinned to the post. Check that this connection is still tight. Also, try sliding the post all the way down into the frame. If it won't go, it could be bent or dented.

11. Inspect your cable housing for kinks or other damage by running your finger over it. If you find any, bend hard in the opposite direction to straighten out the housing, or replace it if it's beginning to unravel at the ends.

12



12. Check for bends in the rear derailleur cage. Does it look straight? Try shifting onto the biggest cog anyway to see if it jumps into the spokes.

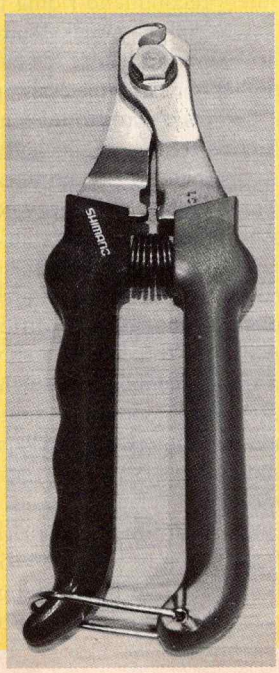
13. A dirty chain won't cause you to crash again, but it will wear more quickly than normal. Use a rag to wipe off any sand or mud that the chain may have picked up during a crash.

14

14. Is your bike too damaged to ride? Walk the bike or carry it back to your car or house rather than riding it. Don't stash your bike. I know two people who've hidden their bikes off the trail, only to return with the car to find the bike gone. It's also a good idea to write your name and phone number on a card and place it inside the head tube. If a thief gets your bike and takes it to a shop, you might get lucky. MB

Lowtech Tool of the Month

There are quite a few cable cutters out there, but we haven't found one that works as well as Shimano's TL-CT10. It's durable, cuts cables and housing and even pinches cable ends on. It costs $39.99. Shimano, (800)353-3817.



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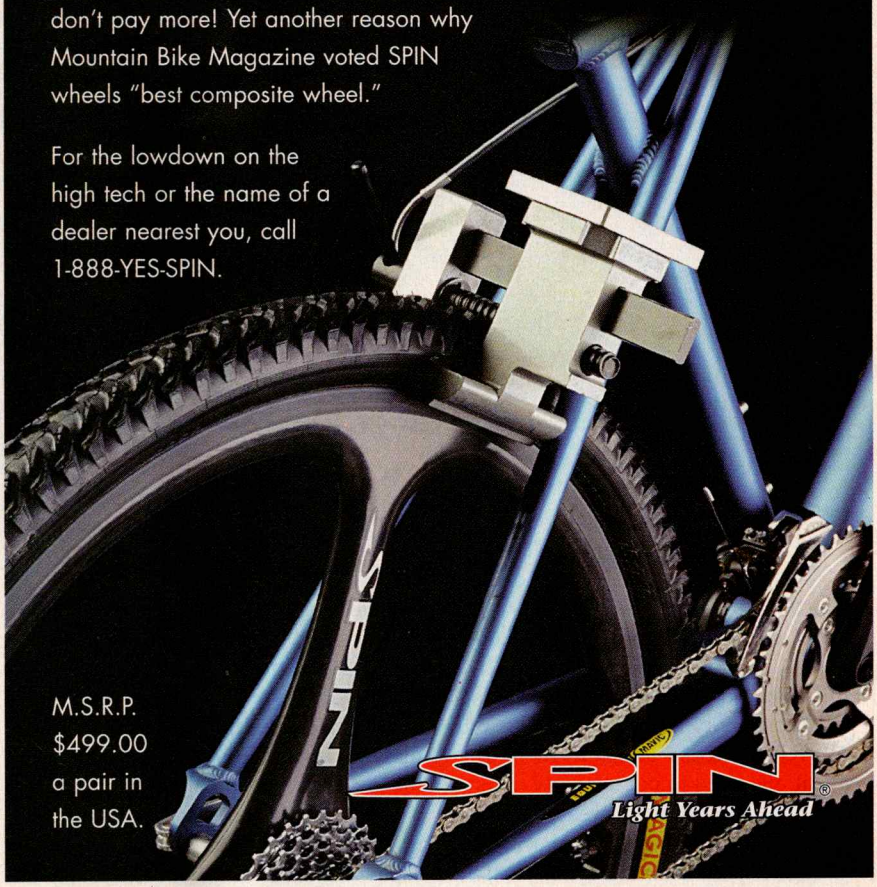

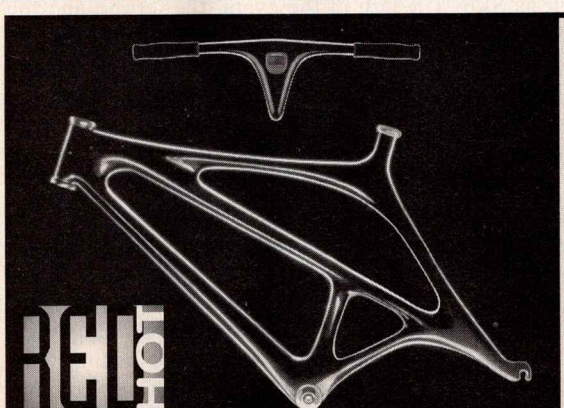

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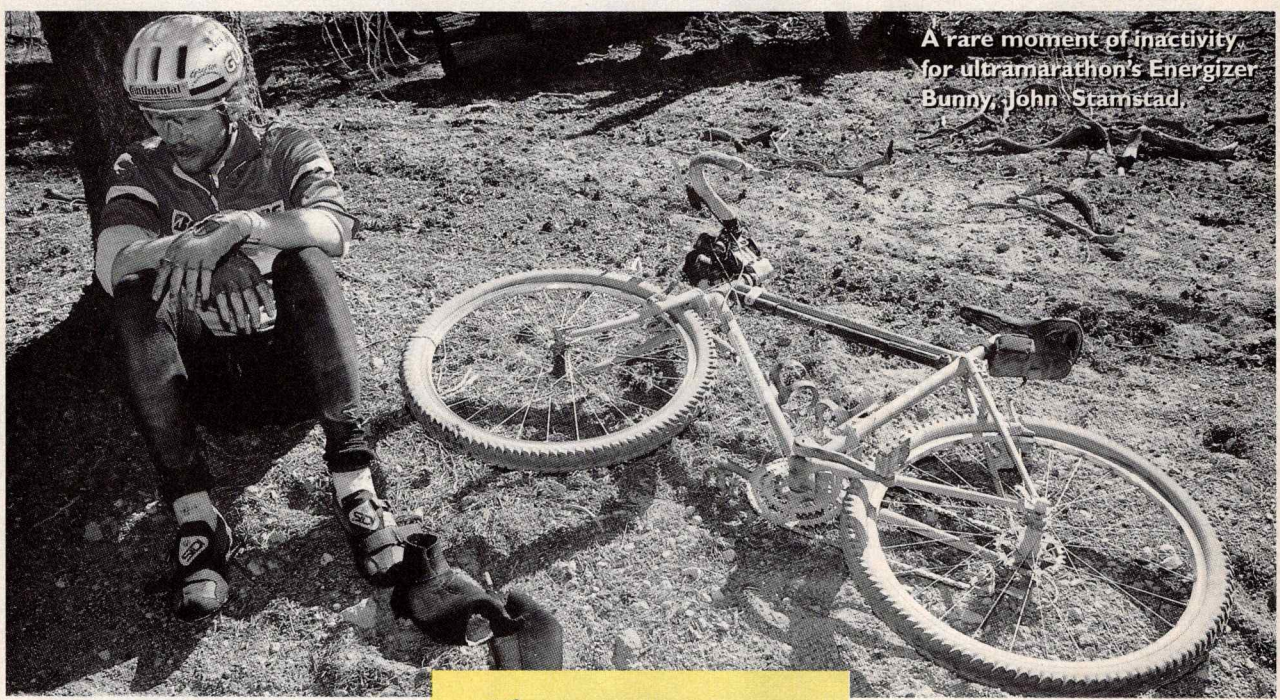
Preparing for an Ultra—The Ride of Your Lifetime

BY EDMUND R. BURKE, PH.D.



A rare moment of inactivity for ultramarathon's Energizer Bunny, John Stamstad.

TOM MORAN

"Only those who will risk going too far can possibly find out how far they can go."
T. S. Eliot

When viewing the start line of the Leadville 100, Cascade Cream Puff 100 or, for that matter, any ultradistance off-road event, one sees that many of the participants are sporting gray hair. Why? Off-road cyclists who compete in ultras are typically older than those seen at NORBA races. The length of the event, the need to put in plenty of long training miles and the greater call for pacing is usually not appealing to younger, speed-oriented cyclists. Many ultra–off-road riders, such as Skip Hamilton, a multi-time winner of the Leadville 100 running race and current D.I.R.T. Camp training coach, will tell you that "the patience and skill needed to succeed at ultracycling comes with experience and the resourcefulness that comes with age."

Riding 100 miles on dirt trails offers particular challenges beyond pacing yourself. The ultradistance cyclist must have a complete understanding for the feeding and care of his or her body and must be able to tolerate fatigue and discomfort that is not often experienced in shorter races. The ultracyclist must also learn to be self-sufficient for many hours by carrying plenty of food, fuel and extra clothing—and possessing the know-how to read maps and trails.

Often the goal is just finishing, which in itself is considered a victory. This is especially true when you factor in the length of the event, the terrain and the weather. Most mortal beings are often out on the course for over 10 hours, and often the weather turns ugly when the cyclist is coming down to the closing miles of the race and his energy reserves are at their lowest.

The Leadville 100, for example, begins in the town of Leadville, Colorado, at 10,150 feet; the highest point is 12,600 feet on mountain trails with 15,000 vertical feet of elevation change. Hypothermia, altitude sickness, delirium, lightning, rain, snow, hail, heat and cold are only a few of the difficulties one may experience during the event.

There are many training styles used when preparing for such events. Some advocate riding up to 300 miles per week, with one long ride of six to eight hours in the weeks leading up to the event; others recommend riding progressive 50- to 400-mile weeks, starting about 8 to 10 months before the event. In yet another approach the cyclist gets into top form for traditional length NORBA cross-country events and just makes up his mind to ride an ultracycling event. The latter category completes several races each year with less than 100 miles of training per week.

For most, preparation for an ultra is different from that of a traditional NORBA event: You ride at a slower pace and try to maintain it throughout the ride. It's also important to simulate race conditions. Otherwise, you'll experience undue stress, surprises and injury on race day.

In preparation for the Leadville 100, I have been training about 10 to 15 hours per week. I've been trying to adapt to several conditions: Altitude,

hilly terrain, rough surfaces, heat and cold and the need for nourishment. I'm also concerned with the time I spend in the saddle more than the mileage I cover.

My rides consist of a considerable amount of climbing, since Leadville has over 15,000 feet of altitude changes. I find walking or pushing breaks are important every hour for a few minutes to keep my muscles loose and delay the inevitable fatigue. I have even started a few of my long rides at noon to experience the heat of the day and the late-afternoon thunder storms that often occur in Colorado.

Another factor affecting one's success is learning to eat and drink properly during the event. On long rides, I have tried different foods and drinks to see how they settle in my stomach. You can not get away with nutritional mistakes in an ultra.

Somewhere past 50 miles, an endurance race becomes as much a mental ordeal as a physical one. Experienced ultracyclists stress the importance of training the mind as well as the body. "Keeping your pace under control, staying hydrated and fueled, and your mind focused on the task are the keys to success," says enduro hero John Stamstad. Even on a long ride like the White Rim Trail in Utah, the severe conditions may make nourishment and proper mental attitude an even greater factor than fitness. There is a certain courage in accepting the challenge of an ultraevent, and finishing one sets you apart and will forever be one of your strongest cycling memories. Anyone with even an urge to ride an ultra, should prepare for one and give it a try. **MB**

Training Equipment and Fuel

Here are some important pieces of equipment that I have settled on for my long training rides. I have selected this equipment knowing that 100 miles at altitude demands comfort and efficiency. I'm riding a Schwinn S-10 full-suspension bike, which is heavier than most hardtails, but I like the increased comfort over the long mileage. I have settled on Mavic CrossMax wheels with a Shimano titanium cassette (12-32) because lighter wheels make for easier climbing.

I carry my food and fluid and some additional clothing in my CamelBak MULE. This model offers a 90-ounce bladder and plenty of room to carry several Pocket Rockets (a carbohydrate gel with caffeine) and Thunder Bars (with ginseng and guarana) for long rides. I try to drink a minimum of 30 to 40 ounces per hour along with two gel packs and a half bar per hour. During rides over 4 hours I use the larger CamelBak HAWG, because it will hold two 90-ounce reservoirs and plenty of food.

My Polar Crosstrainer has been invaluable in monitoring my efforts and training mileage. It helps ensure that my heart rate stays below my lactate threshold on long climbs,so I don't go into anaerobic debt and burn up valuable stores of muscle glycogen. I'm also able to record my heart rate, mileage and altitude climbed for later analysis by downloading the information into my computer.

For shoes I've chosen Shimano SH-110s for comfort and support. I normally wear a 9 1/2 shoe, but now use a size 10, because I've found that I can add an extra pair of insoles for increased comfort, and the extra space also allows room for my feet as they swell. The hook-and-loop straps also allow me to adjust tension while riding. I use Pearl Izumi shorts because they're comfortable and fit nicely, and I've selected light-colored jerseys to help reflect the solar load of the sun at high altitudes.

Livin' On Plant

BY VIRGINIA DEMOSS

The last time I wrote about a vegetarian diet in *Mountain Biker*, it proved to be the best-read "Nutrition" column in the magazine's history. That's not really surprising, since a love of the environment draws many into the sport of cycling, and improved health and fitness makes it attractive to many more. Why wouldn't mountain bikers be drawn to a diet that saves energy and resources, preserves rain forests, alleviates animal suffering and has a dramatic affect on health and performance?

Since it's such a big subject and apparently of interest to so many readers, we're presenting this article in two parts. This month we'll look at the nuts-and-bolts issues like what a vegetarian or semi-vegetarian diet can do for you, and how to ensure that you get all the nutrients you need. Next month we'll deal with some of the more immediate day-to-day questions facing those who are thinking about trying a vegetarian diet...or are having trouble sticking to one.

Green, Lean and Mean

While there are many compelling reasons for becoming a vegetarian (see "Of Ethics and the Environment" sidebar), this is a nutrition column, so we'll focus on the health benefits—which are abundant and grow more compelling every day. Depending on the strictness of their diets, vegetarians are much less susceptible to heart disease, many forms of cancer, hypertension and stroke, diabetes, obesity and even such bowel disturbances as diverticulitis, hemorrhoids and constipation. Why?

•Meatless diets are typically lower in fat, particularly saturated fat, which clogs arteries and is implicated in certain cancers.

•With less fat, meatless diets are usually lower in calories, so vegetarians tend to be leaner. Carrying less weight generally means lower cholesterol and blood pressure levels, and less likelihood of developing diabetes.

•Meatless diets are typically high in cholesterol-lowering plant and soy proteins, as well as fiber, which helps reduce cholesterol, blood pressure and blood sugar levels, and may help speed carcinogens out of the intestines. Fiber also helps fill you up with fewer calories.

•Plant foods are rich in vitamins C and E, folic acid, beta-carotene, potassium, magnesium and many other substances that do everything from preventing the oxidative damage that causes cholesterol to stick to arteries and normal cells to turn cancerous, to regulating blood pressure. Vegetarian diets are also lower in iron, which promotes oxidation.

•A meatless diet reduces your exposure to bacteria (salmonella, E. coli), chemicals (pesticide residues that accumulate in fatty tissues), antibiotics, hormones and other harmful substances that may be found not only in meat, but in eggs and dairy products. According to USDA estimates, contaminated meat and poultry may cause as many as five million illnesses and 4000 deaths every year.

•In one clinical trial after another, those who consume the least saturated fat, and the most fruits, vegetables, grains and legumes, come out on top in the battle against disease.

•As an added bonus for mountain bikers, a vegetarian diet mirrors the one that is most often recommended for athletes. It's low in fat, moderate in protein and very high in the carbohydrates that fuel muscles and prolong endurance.

Paranoid About Protein

The thing many would-be vegetarians—particularly athletes—worry about most is that they won't get enough protein or that it won't be high-quality protein. It's true that animal foods offer complete protein (that is, they contain all of the essential amino acids we need to get from food). But even strict vegetarians can easily get all the protein they need by eating a varied diet and getting adequate calo-

Here are some protein-packed plant foods that will help you get enough of the recommended daily allowance.

FOOD/SERVING	SIZE	PROTEIN (grams)
Green Giant Harvest Burger	*1 patty*	*18*
Lentils	*1 cup cooked*	*16*
Garbanzo beans	*1 cup cooked*	*12*
Tofu	*4 oz.*	*10*
Lightlife Smart Dog	*1*	*9*
Dennison's Vegetarian Chili	*1 cup*	*8*
Peanut butter	*2 Tbsp.*	*8*
Pasta	*1 cup cooked*	*7*
Brown rice	*1 cup cooked*	*5*
Whole-wheat bread	*2 slices*	*5*
Oatmeal	*1 cup cooked*	*5*
Broccoli	*1 cup cooked*	*5*
Soy milk	*1 cup*	*3*
Corn muffin	*1*	*3*

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ries. There are rare exceptions, but most Americans get far more protein than they actually require, which can be just as bad as too little.

Your protein need is based on your lean body mass and your activity level (athletes need more for tissue repair), but the USRDA's are considered a good guideline. For a 15- to 24-year-old male, that's 58 to 59 grams of protein daily, while for men over 25 it's 63 grams. For women 15 to 24 it's 44 to 46 grams, and for women over 25 it's 50 grams.

If you're a vegetarian who eats dairy foods and/or eggs, it's a cinch to get all of the protein you require (an egg has 6 grams, a cup of milk 8 grams), but be careful because along with the protein, these foods bring a heavy load of saturated fat and cholesterol. For strict vegetarians, getting enough protein is only slightly more complicated, but if you eat beans and rice, falafel with pita bread, or a peanut butter sandwich, you're getting complete protein in a single meal.

Getting Everything You Need

While protein isn't a problem, there are some other nutrients you need to watch more closely. Women have an especially hard time getting enough calcium if they eliminate dairy products. Vegans should emphasize calcium-rich foods such as greens, broccoli, spinach, bok choy, okra, tofu, soy milk, dried fruits and almonds. A supplement like calcium carbonate may also be in order to get the 1000 to 1500 milligrams of calcium women need daily.

Iron is another nutrient that women need, and good sources include beans, lentils, peanuts and peanut butter, prune juice, raisins and other dried fruits, millet, wheat and greens.

name that vegetarian

About 500,000 to two million Americans are true vegetarians who eat no meat, fish or fowl. Apparently a lot more are striving for the title, however, since more than 12 million call themselves vegetarians despite the fact that they may also eat fish, chicken or even red meat occasionally. These might more accurately be called "semi" or "part-time" vegetarians, though those who eat fish (but not meat or poultry) are sometimes called "pesco-vegetarians." Vegans are the strictest vegetarians, allowing no animal foods of any kind (including honey) in their diets. Lacto-vegetarians will consume dairy foods, and lacto-ovo vegetarians will consume dairy products and eggs.

OF ETHICS & THE ENVIRONMENT

The environmental and animal rights movements have lured a lot of people into the vegetarian way of life, and no wonder. Meat doesn't magically appear in supermarkets and fast-food restaurants, but is actually the product of incredible cruelty, environmental destruction and wasted resources. When one considers the way veal is produced, or that tropical rain forests are burned at the rate of 150 acres a minute to make way for grazing, or that it takes 13 pounds of grain, 1600 gallons of water, and 35 pounds of topsoil to produce a single pound of beef, it's not difficult to make a moral decision to become a vegetarian. Those who come to vegetarianism via this route often have an easier time sticking to their convictions than those who do so for health reasons.

If you're interested in finding out more about the impact of meat production on animals and the environment, among the best resources are *Diet for a Small Planet* by Frances Moore Lappé and *Diet for a New America* by John Robbins.

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Since vitamin B12 is found only in animal foods, vegans will need an alternative source of this essential vitamin. Aside from supplements, it can be obtained from fortified breakfast cereals, yeast and soy milk.

As for the rest of the nutrients you require, you can get enough by eating a wide variety of foods every day and by making calories count—that is, eating nutrient-rich foods instead of the empty calories of snacks and soft drinks. You should also use whole-grain products whenever possible and increase your consumption of legumes, fruits, vegetables, nuts and seeds. If you still worry about coming up short, you can always take a daily multiple vitamin/mineral supplement, which is good insurance for anybody. **MB**

FROM OUR TEST KITCHEN

rice pilaf

See how easy it is to get complete protein? Even if you've never cooked before, you can make this healthy and delicious dish. Serve it alone, with steamed or grilled vegetables on the side, or stuffed into pita pockets.

2 Tbsp. olive oil
1/4 cup sliced almonds
1/4 cup pine nuts
2 stalks celery, chopped
1 medium onion, chopped
3/4 cup white rice (not quick rice)
1-1/4 cup vegetable broth, heated
Pepper to taste

Heat olive oil in heavy skillet. Add almonds and pine nuts and toast until golden brown. Remove with slotted spoon so oil drains back into pan, and set nuts aside. Add onion and celery to oil and sauté until they begin to brown, about five minutes. Add rice and stir frequently until it turns light brown, about five minutes. Stir in hot broth, cover, reduce heat and simmer until all liquid is absorbed, about 15 to 20 minutes. Stir in nuts and serve.

Tip: Canned vegetable broth by Swanson or Hain is available in the soup or health food aisle of most supermarkets. Other products include Better Than Bouillon Vegetable Base from Superior Touch, Vegetarian Vegetable Bouillon cubes from Knorr and a variety of vegetable soup cubes from Telma (available in the Kosher section). You can also save liquid from canned beans and vegetables (I keep a container in the freezer for that purpose) or make your own vegetable broth from scratch.

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Motorcycles and Bicycles: A Molotov Cocktail?

BY PATRICK O'GRADY

The tip sounded like an April Fool's gag: Motorcyclists and mountain bikers, who aren't always the best of friends, were joining forces to rehabilitate some shared singletrack at the foot of Pikes Peak.

"No joke," says Josh Osterhoudt, president of the Medicine Wheel bicycle club, which builds, maintains and lobbies for access to trails in and around Colorado Springs, Colorado. Medicine Wheel and the Colorado Motorized Trail Riders Association (CMTRA) were ready to put a few dozen two-wheelers to work—whether powered by lactic acid or dinosaur wine—during National Trails Day.

"We're looking to change gears a little bit and get involved with a number of other user groups," Osterhoudt says. "The whole idea is to get together with the U.S. Forest Service and determine what areas we have in common, and then get together and do some trail work."

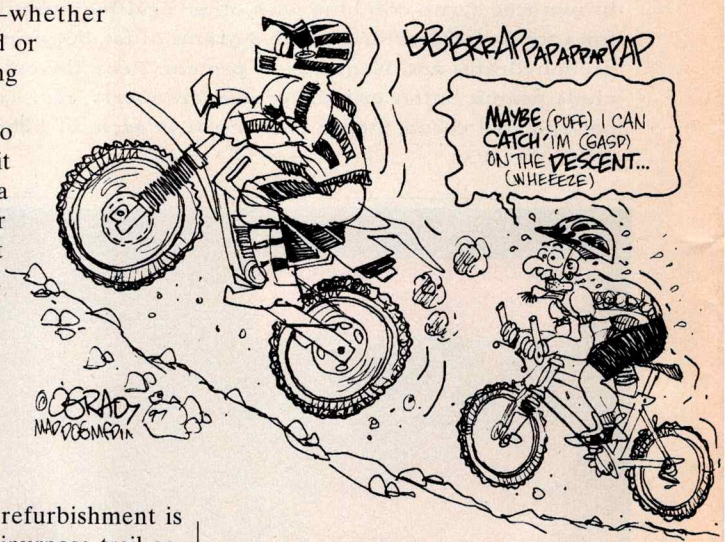
One candidate for refurbishment is Captain Jack's, a multipurpose trail accessible from High Drive and Gold Camp Road. Popular with hikers and bikers of all persuasions, it figures prominently in local training rides and the annual Grand West Outfitters Gear Grinder stage race.

Of course, popularity usually means abuse, and Captain Jack's takes some, from wheels, wind and weather. Medicine Wheel is spread pretty thin, covering access and preservation issues at the Garden of the Gods, Palmer Park and the U.S. Air Force Academy—all of which lie nearby the Pike National Forest.

"We've come to the realization, quite frankly, that we're not going to be able to fix all the trails," Osterhoudt says. "So what we've decided to do is pursue partnerships, to build relationships with different user groups."

According to Osterhoudt and Steve Lang of the CMTRA, at first mountain bikers were reluctant to link up with motorcyclists. As with most human endeavors, what finally sealed the deal was a hefty dose of enlightened self-interest.

"It's the only trail we have [to ride] in the Colorado Springs area. There are countless miles of jeep and fire roads to ride, but the motorcyclists—just like mountain bikers—prefer singletrack like Captain Jack's offers. I get tired of jeep-road stuff," says Lang.



As for Medicine Wheel, the fact that the nonprofit CMTRA had a potful of grant money to spend on trail work also helped sell skeptics.

"I'd talked to Josh a couple of years ago, and he thought there were some people in the club who wouldn't want to work with a motorized group of any sort, so we didn't go anywhere with that," Lang says. But then CMTRA's new president, Bill Fodge—a food distributor who regularly comes into contact with Osterhoudt, a beverage distributor—took another crack at it.

Their first "date" was a three-way meeting between Lang, Osterhoudt and Fodge. Their next, which included Rick Ellsworth of the U.S. Forest Service's Pike's Peak Ranger District, was

a May scouting trip to pick some projects that everyone could agree on.

Like any new relationship, this one had its rough spots. "They were all gung ho on some place that was four, five miles back," Osterhoudt says. "I said, 'Wait a minute, guys...you've got to remember, we have to pedal to get there.'" But they're working it out. Everyone has plenty of ideas, and Lang has outlined a few of his own.

This year, he'd like to move an often-vandalized information sign a little farther past the lower trailhead at Gold Camp Road, fill in some severely rutted sections and rehabilitate a sagging switchback in Bear Creek Cañon.

Lang's wish list would take more than a full day's work, so he is planning for three 10-man trail crews, each with its own chief. "Last year, I was the only guy who knew how to get these retaining walls in," he says. "We had 25 people show up, and we're all working on that narrow trail. So I was trying to tell 25 people what to do over a half-mile of trail. We got it all done, but it took an hour more than I thought—this year, I'm going to have three crew chiefs and be ready for different amounts of people and different amounts of work."

That's the kind of talk Osterhoudt likes to hear, and he doesn't care whether the speaker's riding a Haro or a Honda.

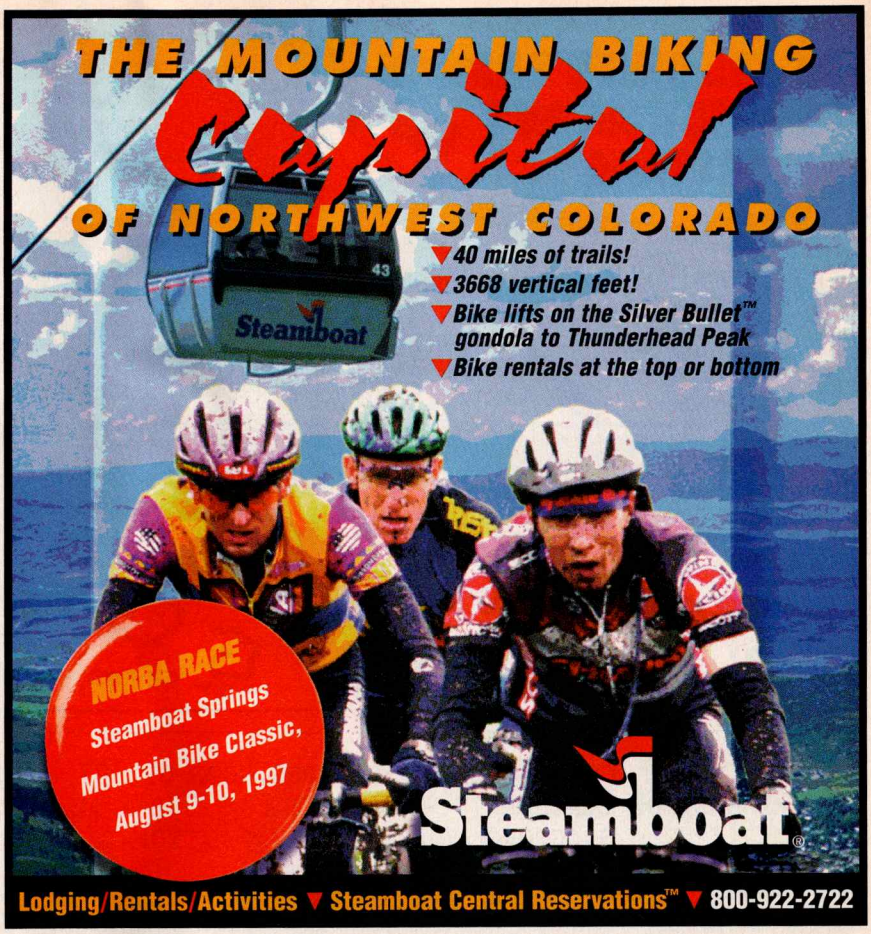
"They had offered help in the past, and we had declined because of the sensitivity," says Osterhoudt. "But now, we said, '*Ahhh*, we're going for it'—whatever sensitivities are out there, they need to get over it. We're all out there for the same reason, and that's the important part."

But the funny thing is that while motorcyclists and mountain bikers alike have horror stories to tell about encounters with one another, neither Osterhoudt nor Lang could recall any personal experiences.

"The motorcycle people...in my experience, have been wonderful," says Osterhoudt.

As for Lang, he says: "I've never had a problem at all. I always hear the other motorcycle guys talk about close calls on the trail, or an exchange of words, but it's never been a problem for me. Not even close." **MB**

Got a trail tale? E-mail Patrick O'Grady at velodog@rmi.net or TheVeloDog@aol.com.



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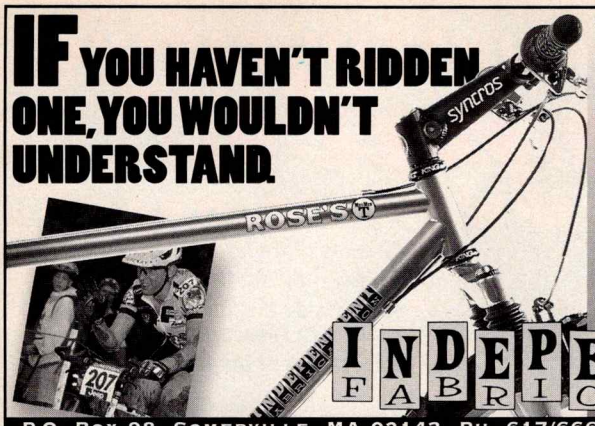

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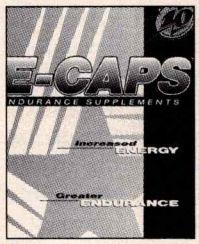

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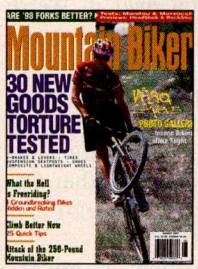

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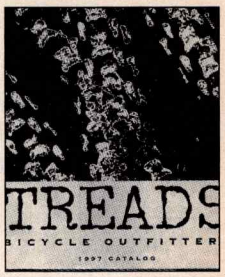

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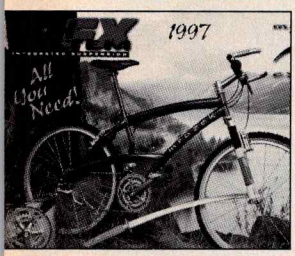

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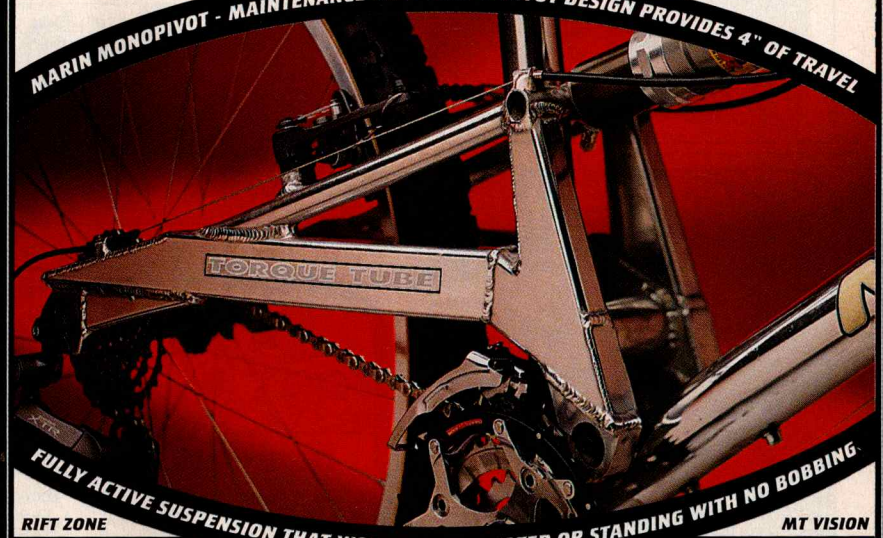

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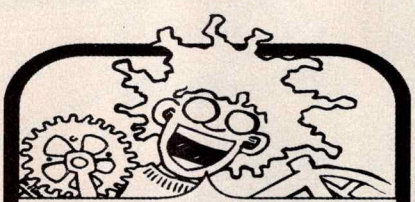

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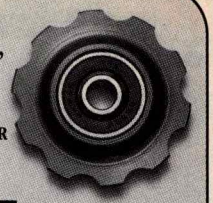

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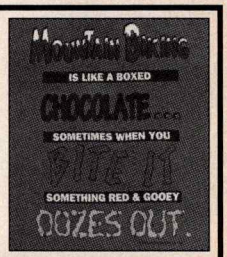

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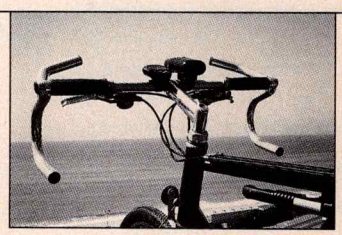

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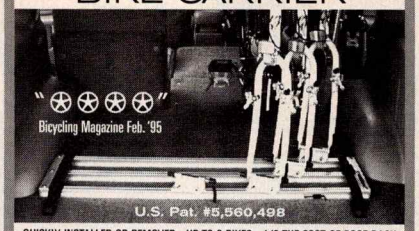

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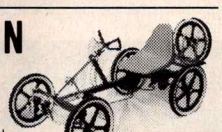

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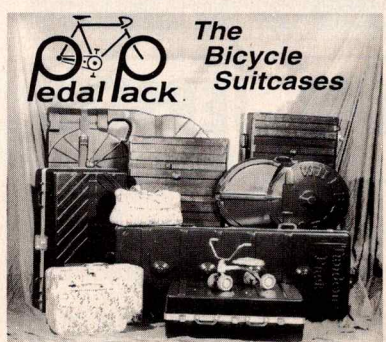

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6 The Water Torture. Manitou Springs, CO: (719)591-4671.

16 The Canon Classic. Colorado Springs, CO: (719)591-4671.

19–20 The River Rage Mountain Bike Weekend. Bethel, ME: (207)824-5015.

19–20 California Mountain Bike Challenge #5. Orinda, CA. MESP: (818)707-8867.

23 The Canon Classic. Colorado Springs, CO: (719)591-4671.

26 Big Mountain Bike Festival. Whitefish, MT: Ron Dillon: (208)342-3910.

26–27 Jeep NORBA NCS, XC #4, DH #6, DS #4. Mammoth Lakes, CA. Bill Cockroft: (619)934-0651.

26–27 Family Mountain Bike Weekend. Mount Snow, VT: (800)245-SNOW or (802)464-8501.

26–27 Beauty and the Beast Mountain Bike Weekend. Killington, VT: (802)422-6252.

27 Sandia Peak Mountain Bike Challenge Race Series #3. Albuquerque, NM. Sandia Peak Ski Co: (505)856-6419.

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2–3 The Wicked Witch of the East Mountain Bike Weekend. Warren, VT: (802)583-6483.

2–3 Jeep NORBA NCS, XC #5, DH #7, DS #5. Seattle, WA. Gino Lisiecki: (509) 533-9354.

2–3 California Mountain Bike Challenge #6. Running Springs, CA. MESP: (818)707-8867.

3 Ithaca Challenge Mountain Bike Race. Ithaca, MI. Fun Promotions: (616)453-4245.

3 The Rampart Classic. Woodland Park, CO: (719)591-4671.

6–10 WOMBAT Jamboree '97. Durango, CO: (970)247-0232.

9–10 Sandia Peak Series #4 King of the Mountain/ NORBA AMBC. Albuquerque, NM. Sandia Peak Ski Co.: (505)856-6419.

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10 Chainbuster Challenge #5. Oxford, GA. Al Strickland: (770)787-8193.

13 Return to Hell on a Hillside. Manitou Springs, CO: (719)591-4671.

16–17 Mickey's Ohio State Champ. Series #5. Hopedale, OH. Calvin Mickey: (614) 946-5631.

16–17 The Widow Maker Challenge Mountain Bike Weekend. Carabassett Valley, ME: (207)237-2000.

16–17 Grundig World Cup DH Final. Kaprun, Austria.

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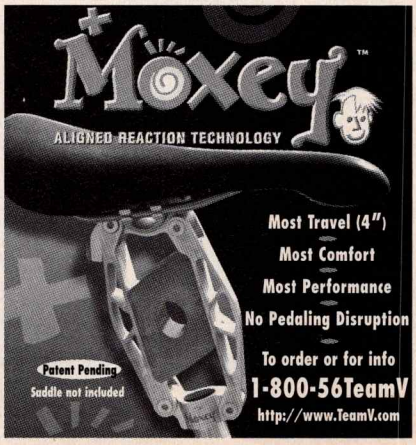

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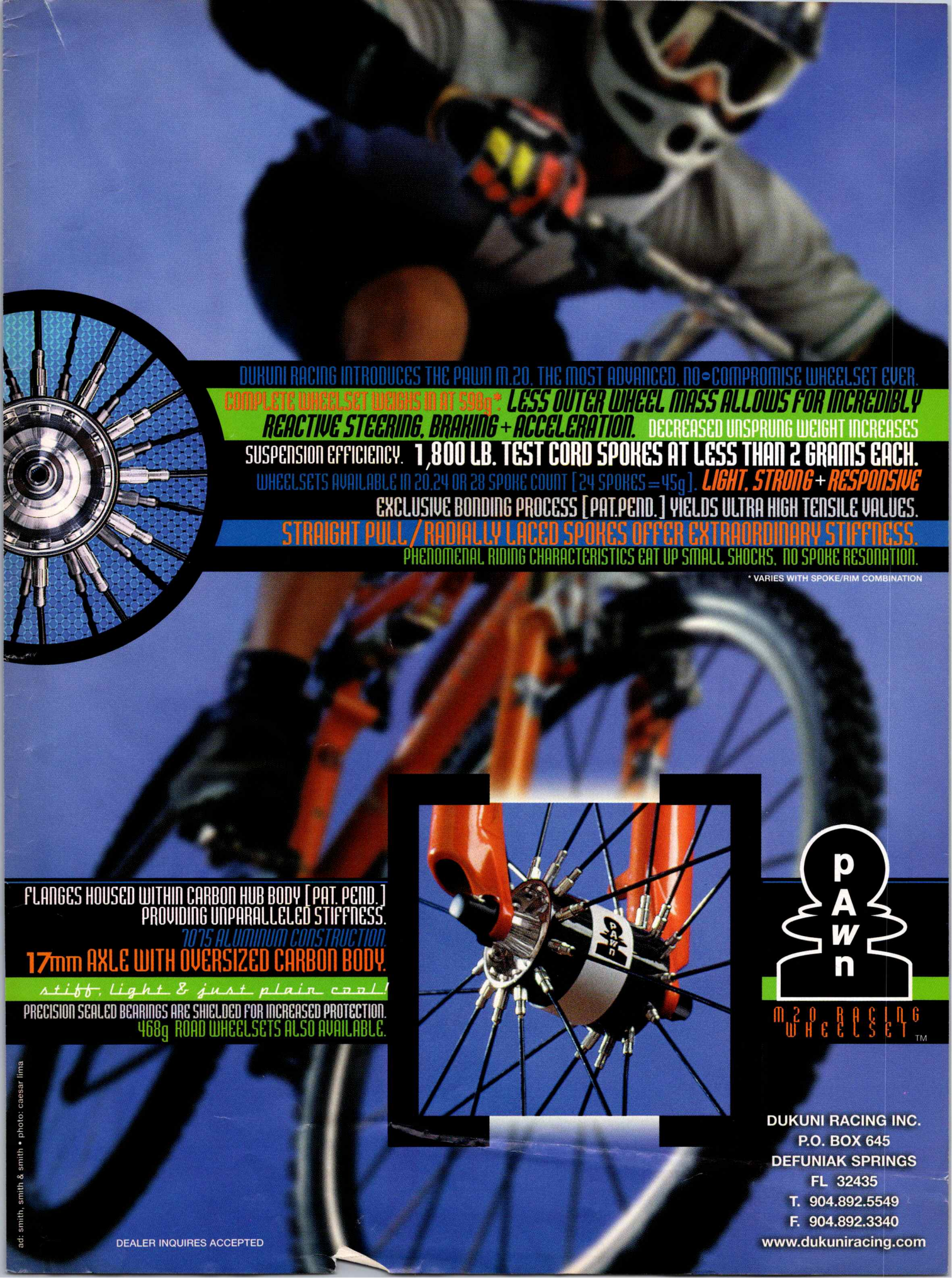
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